REE FULL VERSIONS: EZ-Mixer SE + SecureUp FileSpread

130+ Reviews!

AUSTRALIAN

pc world

EXPERT TECHNOLOGY ADVICE

PCWORLD.IDG.COM.AU FEBRUARY 2002 $7.50 (including GST)

Schoolies sites: get a head start

Best sites for the new school year PAGE 49

Games bonanza PAGE 64

We review the latest new games + fantastic free games, Linux games

2.2GHz Pentium 4 Northwood tested!

Intel's new sockets, new chipsets PAGE 26

TOP 20 Technology Trends 2002

What's in store for PCs, CPUs, mobiles, the Net and more

Pixel Powerhouses

PAGE 74

Reviewed: 10+ High-end Digital Cameras

Cheaper, smaller, more features than ever!

PAGE 30 First Looks

Quark XPress 5.0 beta

PAGE 104 Step-by-step guides

- Upgrade your hard drive
- Be a DJ: how to mix MP3s
- 17 pages of tips + tutorials

PAGE 84 Best Buys

Latest AMD Athlon MP + Athlon XP PCs

Home, Business + Sub-$2000 PCs

Power, Business + Sub-$3000 Notebooks

14 pages reviews

CD missing? Ask your newsagent

irst Looks

ARDWARE

non MultiPass L60, Apple iPod, NEC MultiSync LCD1830, om 10Mbps LAN CF+ Card, Sony DCRIP7E

FTWARE

andrake Linux Gaming Edition, Quark XPress 5.0 beta, EasyOffice Premium 3 and arOffice 6 beta, Pinnacle Studio Version 7

ISSN 0813-1384
02
9 770813 138009

performance, you too can be number one.

Number One PC Vendor[3]

NEW

DIMENSION™ 4400

Pictured with optional 19" Trinitron Monitor (add $694*).

- Intel® Pentium® 4 Processor 1.8GHz ■ 20GB[1] HDD
- 128MB 266MHz DDR-SDRAM
- 48X Max CD-ROM ■ 17" Colour Monitor (15.9"v.i.s.)
- SoundBlaster Live! Value 576 Voice Sound Card
- Harmon Kardon Stereo Speakers ■ 56K Modem
- 64MB nVidia GeForce2 MX AGP Graphics Card
- Microsoft® Windows® XP Home Edition
- Microsoft® OEM Works Suite 2001
- 1-Year Limited Warranty (1 Year Next Business Day On-site[2] Service)
- **FREE Encyclopaedia Britannica 2002 Standard Edition CD-ROM – OEM version**

VALID TIL 8/02/02 **$2,299*** PLUS $99* STANDARD DELIVERY PRICES INCLUDE GST. | $16.25** PER WEEK CONSUMER LOAN CONDITIONS APPLY

Please Quote when ordering **E•VALUE CODE C210103-471001**

DIMENSION™ 8200

Pictured with optional 19" Trinitron Monitor (add $694*).

- Intel® Pentium® 4 Processor 1.8GHz ■ 20GB[1] HDD
- 256MB RDRAM
- 16X Max DVD-ROM ■ 56K Modem ■ PC Stereo Speakers
- 64MB nVidia GeForce2 MX AGP Graphics Card
- SoundBlaster Live! Value 576 Voice Sound Card
- 17" Colour Monitor (15.9"v.i.s.)
- Microsoft® Windows® XP Home Edition
- Microsoft® Works Suite 2001 – OEM Version
- 1-Year Limited Warranty (1 Year Next Business Day On-site[2] Service)
- **FREE Encyclopaedia Britannica 2002 Standard Edition CD-ROM – OEM version**

VALID TIL 8/02/02 **$2,599*** PLUS $99* STANDARD DELIVERY PRICES INCLUDE GST. | $18.30** PER WEEK CONSUMER LOAN CONDITIONS APPLY

Please Quote when ordering **E•VALUE CODE C210104-471001**

DIMENSION™ 8200

Pictured with optional 19" Trinitron Monitor (add $694*).

- Intel® Pentium® 4 Processor 2GHz ■ 100GB[1] HDD
- 256MB RDRAM
- 16X Max DVD-ROM ■ 56K Modem ■ PC Stereo Speakers
- 64MB nVidia GeForce2 MX AGP Graphics Card
- SoundBlaster Live! Value 576 Voice Sound Card
- 17" Colour Monitor (15.9"v.i.s.)
- Microsoft® Windows® XP Home Edition
- Microsoft® Works Suite 2001 – OEM Version
- 1-Year Limited Warranty (1 Year Next Business Day On-site[2] Servic
- **FREE Encyclopaedia Britannica 2002 Standard Edition CD-ROM – OEM versi**

VALID TIL 8/02/02 **$3,199*** PLUS $99* STANDARD DELIVERY PRICES INCLUDE GST. | $22.35** PER WEEK CONSUMER LOAN CONDITIONS APPLY

Please Quote when ordering **E•VALUE CODE C210105-471001**

INSPIRON™ 4100

- Mobile Intel® Pentium® III Processor 1.2GHz – M supporting Enhanced Intel® Speedstep™ technology ■ 10GB[1] HDD
- 128MB PC133 SDRAM
- 32MB DDR 4 X AGP NVIDIA GeForce2 Go 3D Video
- 14.1" XGA TFT Display (1024x768 res)
- 3D Positional Sound with Wavetable ■ 24X Max CD-ROM
- Microsoft® Windows® XP Home Edition
- Microsoft OEM Works Suite 2001
- 1-Year Limited Warranty (1 Year Next Business Day On-site[2] Service)

VALID TIL 8/02/02 **$3,599*** PLUS $99* STANDARD DELIVERY PRICES INCLUDE GST. | $25.10** PER WEEK CONSUMER LOAN CONDITIONS APPLY

Please Quote when ordering **E•VALUE CODE C520104 - 471001**

3D Tour Visit www.dell.com.au/inspiron8100tour

INSPIRON™ 8100

- Mobile Intel® Pentium® III Processor 866MHz – M featuring Intel® Speedstep™ technology ■ 512KB L2 Cache ■ 20GB[1] HDD
- 128MB PC133 SDRAM ■ 32MB DDR 4x AGP NVIDIA® GeForce2 Go™
- 3D Positional Sound with Wavetable
- Harman/Kardon® Odyssey® 2 Speakers (Internal)
- 15" SXGA+ TFT Display (1400x1050 res)
- 24X Max CD-ROM ■ Microsoft® Windows® XP Home Edition
- Microsoft® Works Suite 2001 – OEM version
- Internal Mini-PCI 56K Capable Fax Modem
- 1-Year Limited Warranty (Next Business Day On-site[2] Service)
- **FREE Encyclopaedia Britannica 2002 Standard Edition CD-ROM – OEM version**

VALID TIL 8/02/02 **$3,299*** PLUS $99* STANDARD DELIVERY PRICES INCLUDE GST. | $23.05** PER WEEK CONSUMER LOAN CONDITIONS APPLY

Please Quote when ordering **E•VALUE CODE C510103 - 471001**

3D Tour Visit www.dell.com.au/inspiron8100tour

INSPIRON™ 8100

- Mobile Intel® Pentium® III Processor 1GHz – M featuring Intel® SpeedSt technology ■ 512KB L2 Cache ■ 20GB[1] HDD
- 256MB PC133 SDRAM
- 64MB DDR ATi Mobility Radeon 7500 4x AGP Video
- 3D Positional Sound with Wavetable
- Harman/Kardon® Odyssey® 2 Speakers (Internal)
- 15" UXGA TFT Display (1600x1200 res)
- 8X Max DVD-ROM ■ Microsoft® Windows® XP Home Edition
- Microsoft® Works Suite 2001 – OEM version
- Internal Mini-PCI 56K Capable Fax Modem
- 1-Year Limited Warranty (Next Business Day On-site[2] Service)
- **FREE Encyclopaedia Britannica 2002 Standard Edition CD-ROM – OEM vers**

VALID TIL 8/02/02 **$3,999*** PLUS $99* STANDARD DELIVERY PRICES INCLUDE GST. | $27.80** PER WEEK CONSUMER LOAN CONDITIONS APPLY

Please Quote when ordering **E•VALUE CODE C510107 - 471001**

SERVERS

The Dell PowerEdge™ family of high-performance servers offers a system for virtually every need and budget, with the built-in headroom your growing business has to have to keep pace with your ever expanding needs. Dell™ server solutions range from the entry level PowerEdge™ 500SC and the small office and workgroup class PowerEdge™ 1500SC through to the departmental PowerEdge™ 4400 and up to the enterprise PowerEdge™ 6400.

Value Workgroup Server

POWEREDGE™ 1500SC

- Intel® Pentium® III Processor 1.13GHz (Dual Processor Capable)
- 512KB Internal L2 Cache/133MHz
- 18GB[1] 10K Ultra160 Hot plug SCSI Hard Drive
- 128MB SDRAM with ECC
- 3.5" 1.44MB Diskette Drive
- Embedded Intel® Pro 1000 Gigabit NIC
- Integrated Dual Ultra3 (Ultra 160) SCSI Adaptec AIC7899
- 48X Max EIDE CD-ROM Drive
- 3-Year Limited Warranty (With 1-Year Next Business Day On-site[2] Service)

VALID TIL 8/02/02 **$3,599*** PLUS $99* STANDARD DELIVERY PRICES INCLUDE GST. | $25.10** PER WEEK CONSUMER LOAN CONDITIONS APPLY

Please Quote when ordering **E•VALUE CODE C420116 - 471001**

Basic Server at Our Lowest Price

POWEREDGE™ 500SC

- Intel® Celeron™ Processor 900MHz
- 128KB Internal L2 Cache/100MHz
- 128MB 100MHz SDRAM with ECC
- 20GB[1] IDE Hard Drive
- 3.5" 1.44MB Diskette Drive
- Embedded Intel® Pro 100+ NIC
- Integrated IDE Controller
- 48X Max EIDE CD-ROM Drive
- 3-Year Limited Warranty (With 1-Year Next Business Day On-site[2] Service)

VALID TIL 8/02/02 **$1,399*** PLUS $99* STANDARD DELIVERY PRICES INCLUDE GST. | $10.15** PER WEEK CONSUMER LOAN CONDITIONS APPLY

Please Quote when ordering **E•VALUE CODE C420106 - 471001**

*DELL'S NORMAL TERMS AND CONDITIONS APPLY AND ARE AVAILABLE ONLINE OR ON REQUEST. **Pricing, specifications and availability subject to change without notice. Prices shown are inclusive of GST. An additional charge of $99* inc GST applies to all systems purchased. Other delivery options available. Call for details.** All efforts will be made to check for errors in typography and photography; however inadvertent errors may occur for which Dell may not be responsible. Above prices cannot be combined with any other discount/promotion program. Dell, the Dell logo, Dell Dimension, Inspiron, Precision, PowerEdge and Evalue are trademarks of the Dell Computer Corporation. Other trademarks and trade names may be used in this document to refer to either the entities claiming marks and names or their products. Dell disclaims proprietary interest in the marks and names of others. Copyright 2001 Dell Computer Corporation. All rights reserved. Microsoft and Windows are either registered trademarks or trademarks of Microsoft corporation in the United States and/or other countries. **Conditions apply. Minimum purchase $1,000.00. Finance is available through an independent third party to approved applicants only. Finance offer not available to residents of Western Australia. Above figures are indicative, based on a 48 month purchase plan with payments made monthly in arrears by Direct Debit only. Interest will be calculated monthly on the unpaid daily balance of the Total Cash Price for the period, ceasing at the end of the agreed term. Interest will be calculated at a rate of 17.99% per annum. Actual monthly payments depend on the exact system selected, the term of the loan and then-applicable rates. Rates current at the time of publication and are subject to change without notice. Rates exclusive of stamp duty. Stamp duty applicable in some states. Every Loan is subject to credit approval and conditions may apply. Full terms and conditions of the Loan are available on request. [1]For hard drives, GB means 1 billion bytes; accessible capacity varies with operating environment. [2]On-site service provided by independent third-party service provider and may not be available in certain remote locations. Technician shall be dispatched if necessary following telephone technical support. [3]Source: IDC PC Tracker Q2 2001. [4]Up to 11MB of system memory may be allocated to support DVMT graphics. [5]This offer is not available to persons who are AOL members as at 14 December 2001. You must be 18 years or older. Access to AOL requires a credit card & is subject to AOL credit approval. Offer closes 28 February 2002. Only one membership per household permitted on this offer. Free months are consecutive months only from the date of registration (maximum 92 days). Complimentary 3 month magazine subscription (12 issues) to either WHO Weekly or TIME Magazine only available to members who accept this offer and remain an AOL member for 60 consecutive days. At the end of the three free months you will automatically be migrated to AOL's Value Plus Plan (Value Plus Plan price is $24.95 monthly membership fee.) at which point your monthly membership fees will commence being charged to your credit card. Prices do not include telecommunications charges. See terms and conditions provided with your computer. Modem required for internet access. Intel, the Intel Inside logo, Pentium, Intel Speedstep and Celeron are trademarks or registered trademarks of Intel Corporation or its subsidiaries in the United States and other countries.

DELD5207/PCW/GSPREAD

DUX OF THE CLASS. With DELL'S price and

DELL™ is the world's

Dimension™ FREE Offers

At Dell™, you get to choose how your system is put together. For featured Dimension™ systems you also get to choose a free bonus from below.

◀ Lexmark® Z32 Printer

OR

Free 128MB SDRAM

DESKTOPS

Dell Dimension™ desktops integrate the latest technologies to bring you a powerful stand-alone or basic network environment solution – all at budget-friendly prices. Every Dimension™ desktop is custom-built featuring Intel® Pentium® 4 processors or Intel® Celeron™ processors and advanced multimedia capabilities. And, of course, all Dell Dimension™ desktops are backed by our 1-Year On-Site Service.[2]

DIMENSION™ 2100

Pictured with optional 19" Trinitron Monitor (add $867[1]).

- Intel® Celeron™ Processor 1GHz
- 128MB PC100 shared[4] SDRAM
- 20GB[1] HDD ■ Intel® 3D Direct AGP Graphics
- 48X Max CD-ROM ■ PC Stereo Speakers
- SoundBlaster Live! Value 576 Voice Sound Card
- 15" Colour Monitor (13.8"v.i.s.) ■ 56K Modem
- Microsoft® Windows® XP Home Edition
- Microsoft® Works Suite 2001 – OEM Version
- 1-Year Limited Warranty (1 Year Next Business Day On-site[2] Service)
- **FREE Encyclopaedia Britannica 2002 Standard Edition CD-ROM – OEM versio**

VALID TIL 8/02/02
$1,499* PLUS $99* STANDARD DELIVERY PRICES INCLUDE GST.
$10.85 PER WEEK CONSUMER LOAN CONDITIONS APPLY
Please Quote when ordering
E•VALUE CODE C210101-471001

Inspiron™ FREE Offers

For all Inspiron™ notebooks featured you also get to choose a free bonus from below.

▲ Carry Case

OR

▲ Backpack

OR

128MB SDRAM

NOTEBOOKS

Sidestep obsolescence with Dell Inspiron™ notebooks. These portables are designed for rapid integration of the latest mobile technology with plenty of options to help maximise performance and minimise costs.
All Inspiron™ notebooks are powered by Intel® Pentium® III processors or Intel® Celeron™ processors and include advanced multimedia features.

INSPIRON™ 2500

- Mobile Intel® Pentium® III Processor 900MHz
- 128MB shared[4] SDRAM ■ 20GB[1] HDD
- Intel® Integrated 3D AGP graphics
- 14.1" XGA TFT Display (1024x768res)
- Sound Blaster compatible Audio ■ 24X Max CD-ROM
- Microsoft® Windows® XP Home Edition
- Microsoft OEM Works Suite 2001
- Internal mini PCI 56K Capable Fax Modem
- 1-Year Limited Warranty (1 Year Next Business Day On-site[2] Service)
- **FREE Encyclopaedia Britannica 2002 Standard Edition CD-ROM – OEM version**

VALID TIL 8/02/02
$2,799* PLUS $99* STANDARD DELIVERY PRICES INCLUDE GST.
$19.65 PER WEEK CONSUMER LOAN CONDITIONS APPLY
Please Quote when ordering
E•VALUE CODE C510101 - 471001

WORKSTATIONS

A step beyond the business desktop, Dell Precision™ Workstations are designed to deliver advanced performance. These highly scalable systems are tested, optimised and certified to run demanding workstation-class applications.

Optional 17" flat panel monitor – $1651* and optional chassis stand for $21*

Workstation Value

PRECISION™ 340

- Intel® Pentium® 4 Processor 1.6GHz/400MHZ
- Intel® 850 chipset ■ 256MB PC800 ECC RDRAM
- 20GB[1] Ultra ATA Hard Drive 7200 RPM
- 32MB ATI Raedon VE (Dual) DVI Graphics Card
- 17" High Scan Flat Display Monitor (16" v.i.s.)
- Integrated 3Com 10/100 Ethernet Controller
- Integrated Dual ATA-100 EIDE Controller
- Integrated 16-Bit Sound
- 48X Max Variable EIDE CD-ROM Drive
- Microsoft® Windows® 2000
- 3-Year Limited Warranty (with 3-Year Next Business Day On-site[2] Service)

VALID TIL 8/02/02
$2,995* PLUS $99* STANDARD DELIVERY PRICES INCLUDE GST.
$21.00 PER WEEK CONSUMER LOAN CONDITIONS APPLY
Please Quote when ordering
E•VALUE CODE C620114 - 471001

intel inside pentium 4

DELL PCs use genuine Microsoft Windows
www.microsoft.com/piracy/howtotell

www.dell.com.au | 1300 303 175

DELL

Class Mate

THE DELL INSPIRON™ GOES WHEREVER YOU GO.

Introducing the new Inspiron™ 4100. Combining the processing performance of the New Intel® Pentium® III Processor – M and the latest Intel 830 Chipset supporting Enhanced Intel® SpeedStep™ technology to maximise battery life, this notebook gives you ultimate power in class, at home or anywhere in between.

INSPIRON™ 4100 G866GT NOTEBOOK

- Mobile Intel® Pentium® III Processor 866MHz – M supporting Enhanced Intel® SpeedStep™ technology
  - ▶ Upgrade to: Mobile Intel® Pentium® III Processor 1GHz – M supporting enhanced Intel® SpeedStep™ technology $179*
- 512KB L2 Cache
- 128MB PC133 SDRAM
- 20GB[1] HDD
- 16MB ATI Rage Mobility Radeon – P 4 x AGP Graphics
- 3D Positional Sound with Wavetable
- 14.1" XGA TFT Display (1024x768 res)
- 24X Max CD-ROM
- Microsoft® Windows® XP Home Edition
- Microsoft® Works Suite 2001 – OEM version
- Internal Mini-PCI 56K Capable Fax Modem
- 1-Year Limited Warranty (Next Business Day On-site[2] Service)
- FREE Encyclopaedia Britannica 2002 Standard Edition CD-ROM – OEM version

FREE OFFER
(128MB SDRAM or Backpack or Carry Case)

$21.00 PER WEEK** CONSUMER LOAN. CONDITIONS APPLY.

Please Quote when ordering
E•VALUE CODE C510102 – 471001

VALID TIL FEBRUARY 8TH.
NOW
$2,999*
PLUS $99* STANDARD DELIVERY.
PRICES INCLUDE GST.

With all Inspiron™ systems featured in this ad you will receive 3 months internet access with AOL and a Free 3 month subscription to either Who Weekly or Time Magazine. (60 day continuous subscription to AOL required).[5]

intel inside pentium® III

DELL™ PCs use genuine Microsoft Windows
www.microsoft.com/piracy/howtotell

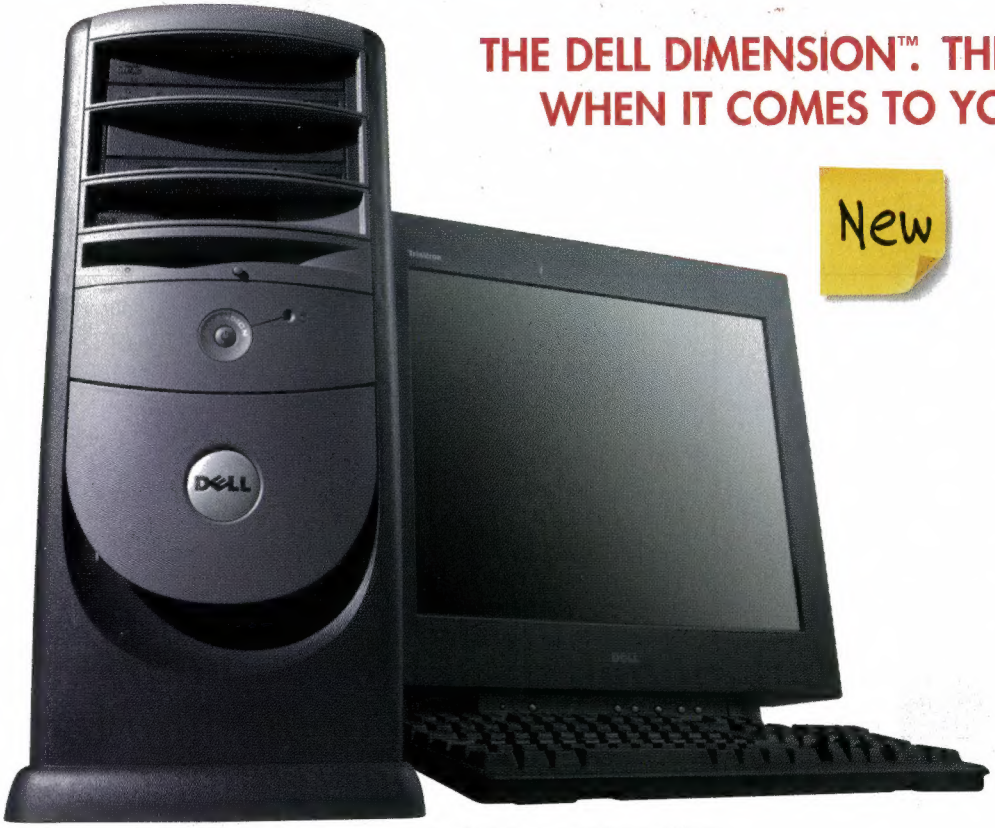
www.dell.com.au | **1300 303 175**
Call Dell™ Mon to Fri 8am-8pm, Sat 9am-3pm (EST)

DELL

Intel, the Intel Inside logo, Pentium and Intel SpeedStep are trademarks or registered trademarks of Intel Corporation or its subsidiaries in the United States and other countries.

DELD5207/PCW/FRONT

Study Buddy



Dell Dimension™ 4400 desktop pictured with optional 19" Trinitron flat display monitor (18" v.i.s) add $867*.

THE DELL DIMENSION™. THE PERFECT PARTNER WHEN IT COMES TO YOUR SCHOOLWORK

New

Looking for an advanced desktop at an affordable price? Look no further than the NEW Dimension™ 4400. The 4400 delivers the power of an Intel® Pentium® 4 processor and 266MHz DDR-SDRAM memory for the best combination of performance and price. From only $1999* plus $99* standard delivery, (inc GST) this is another great deal from the World's #1 PC vendor[3].

DIMENSION™ 4400 DESKTOP

- Intel® Pentium® 4 Processor 1.6GHz
  - ▶ **Upgrade to: Intel® Pentium® 4 Processor 1.7GHz $100***
- 128MB 266MHz DDR-SDRAM
- 20GB[1] HDD
- 48X Max CD-ROM
- 15" Colour Monitor (13.8"v.i.s.)
- SoundBlaster Live! Value 576 Voice Sound Card
- Harmon Kardon Stereo Speakers
- 56K Modem
- 64MB nVidia GeForce2 MX AGP Graphics Card
- Microsoft® Windows® XP Home Edition
- Microsoft® OEM Works Suite 2001
- 1-Year Limited Warranty (1 Year Next Business Day On-site[2] Service)
- **FREE Encyclopaedia Britannica 2002 Standard Edition CD-ROM – OEM version**

FREE OFFER
(128MB SDRAM or Lexmark Z32 printer)

$14.25** PER WEEK — CONSUMER LOAN. CONDITIONS APPLY.

Please Quote when ordering
E•VALUE CODE C210102 – 471001

VALID TIL FEBRUARY 8TH.
NOW
$1,999*
PLUS $99* STANDARD DELIVERY.
PRICES INCLUDE GST.

With all Dimension™ systems featured in this ad you will receive 3 months internet access with AOL and a Free 3 month subscription to either Who Weekly or Time Magazine. (60 day continuous subscription to AOL required).[5]

DELL™ PCs use genuine Microsoft Windows
www.microsoft.com/piracy/howtotell

www.dell.com.au | 1300 303 175
Call Dell™ Mon to Fri 8am-8pm, Sat 9am-3pm (EST)

DELL™

Intel, the Intel Inside logo, and Pentium are trademarks or registered trademarks of Intel Corporation or its subsidiaries in the United States and other countries.

DELD5207/PCW/RH

pc world

contents

COVER STORY

54 20/20 FORESIGHT

TOP 20 TECHNOLOGY TRENDS FOR 2002

Twenty products, trends, and technologies that will change PCs in 2002 — and beyond. We've picked 20 trends and technologies that will have the greatest impact on personal computing for business and home use. We polled trend watchers, technologists, industry experts, and our own editors to uncover the products that will change how you work — and possibly even how you live.

FEATURES

49 WEB AND YOU

SCHOOL'S IN – ONLINE

It's that time of year again — time for kids to go back to school. While parents breathe a sigh of relief, school students have a brand new year to look forward to. Although it seems like a great deal of education content on the Net now comes with a price tag — as sites struggle to make money — much Web material for students is still available for free. To help you prepare for the new school year we've gathered together a wealth of resources for primary and secondary students, as well as some sites that offer information that will appeal to students across the spectrum.

64 GAMING'S ALL-STARS

LATEST NEW GAMES + FANTASTIC FREE GAMES

We round up the best online games as well as the biggest new releases to help kickstart your gaming action this summer. First, take a break with the Web's most addictive puzzles, sports simulations and other diversions — no CD required. Then, we take a look at the 10 hottest new games to hit the market.

74 THE BIG PIXEL

REVIEWED: 10+ HIGH-END DIGITAL CAMERAS

High-end digital cameras are finally starting to come down in price. To help you find the best deal, we review the latest crop — from new compact 4-megapixel models to good choices for home and business use. It's a great time for digital cameras. With 4-megapixel models hitting store shelves, photography buffs are getting more for their money than ever before. These new high-end cameras take digital photography to new heights, producing images that look as good as — and, in some cases, even better than — images on film.

FIRST LOOKS

HARDWARE

36 Canon MultiPass L60; Apple iPod
38 NEC MultiSync LCD1830; 3Com 10Mbps LAN CF+ Card
40 Sony DCRIP7E

SOFTWARE

30 Mandrake Linux Gaming Edition
32 Quark XPress 5.0 beta

34 EasyOffice Premium 3 and StarOffice 6 beta
40 Pinnacle Studio Version 7

BEST BUYS

84 PCS

HOME PCS
Acer Aspire EL
Infocom Gaming Beast
Packard Bell iXtreme 1500DVR
CWS GamePro 9000
Peripherals Plus P4 1.7GHz
Cougar Athlon GeForce3
Microtech Senator 1400
Dell Dimension 8200
Peripherals Plus Athlon 1.4GHz DDR

SUB-$2000 PCS
e@Pc Dream Machine - Series 8
Peripherals Plus Pentium 4 1.5GHz
e@Pc Dream Machine - Series 7
Infocom Multimedia System
CWS HomePro 3000
SATO GamePC J-G50
Peripherals Plus Duron 950
Beam Micro Systems AMD Performance
Australia IT Bravura 1900 Series
Microtech Calais 900

84

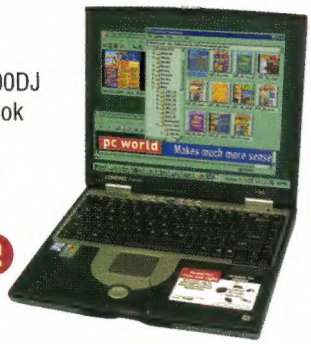
BUSINESS PCS
Peripherals Plus Athlon MP 1900+
Peripherals Plus Athlon XP 1800+
Peripherals Plus Athlon MP 1.2
Acer Veriton 7200
Acer Veriton 7200
CWS BusinessPro 8000
SATO Dragon PC, J-D25
Infocom PIV Workstation
e@Pc Dominator - Series 8
Peripherals Plus Athlon 1.3GHz

92 NOTEBOOKS

OVER $6000
IBM ThinkPad A30p
Dell Latitude C400
Toshiba Tecra 9000
IBM ThinkPad T23

$3001-$6000
Dell Latitude C810
Compaq Presario 1700
Toshiba Satellite 3000
Toshiba Portege 4000
Sony Vaio FX990
Toshiba Satellite 5000

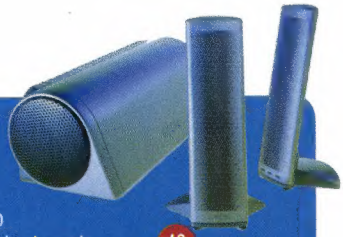
SUB-$3000
ASUS M1
ASUS A1300
Optima Dynamis A1300DJ
Pioneer SOHO Notebook
IBM ThinkPad R30
Toshiba Satellite 1800



COMPETITIONS

Turn to page 97 for your chance to WIN one of five Namo WebEditor 5 software packs worth $451 each.

Turn to page 48 for your chance to WIN one TDK product pack worth $1558, consisting of a 24x10x40x40 veloCD ReWriter, Tremor S-150W multimedia speakers, recordable CDs, and photo inkjet paper.



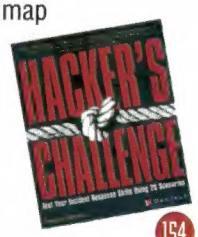
NEWS

12 Healthy e-com appetite
12 com.au gets cheaper
14 Handhelds embed Linux
14 Nimda takes top spot
16 Fake Epson cartridges
16 Pay music service debuts
18 Memory cost to drop
18 Corel's new roadmap

20 BROADBAND
ACCC watches Telstra; Lack of integration hits ADSL

24 ALT.NET
But is it art? — fan art

26 TECH.FILES
Athlon slayer arrives — Intel's Northwood P4 CPU



154

103

DEPARTMENTS

10 EDITORIAL
A fortunate life

42 OPINIONS
42 Forgot your site password? Just Yodlee
By Brad Grimes
44 Lowered XPectations
By Nicholas Petreley

46 READERS' FORUM

103 LINUXWORLD.COM.AU
Using Linux: Great games, great price (free!)

BACKBYTES

153 SKILLS
- Training needed for call centre career

154 BOOK REVIEW
- Buying and Selling Online
- How to Do Everything with Your Scanner
- Hacker's Challenge

155 WEB REVIEW
- Surprise.com
- Fast Forward
- Captain Haddock's curses
- Australian Privacy Commissioner
- 100 years of the Nobel prizes

156 GADGETS AND GIZMOS
- Segway Human Transporter
- Nixvue Digital Album
- Sony digital TV
- Wacom Cintiq 550
- Parachute backpack
- SimCycle
- DataPlay digital media
- Airboard

156

158 GAMES
- Mad Dash Racing
- Aliens vs Predator 2
- Gothic
- Warcraft III
- Medal of Honor: Allied Assault
- Batman: Vengeance

160 BYTESBACK

here's how

104 UPGRADER
Installing a new hard drive: Part 1

108 WINDOWS 9x
Transfer Outlook Express settings

110 WINDOWS 2000
Scripting solutions

112 WINDOWS ME
Toolbar tips

114 WINDOWS XP
Compress those files; Pin shortcuts

116 LINUX
USB modems

117 MAC OS
Using iTunes 2

118 AUDIO
EZ-Mixer 1.0 SE

119 GRAPHICS
Scanning and resolution

120 HTML
Troubleshooting

121 PHP
Dealing with databases

122 HELP SCREEN
Operating Systems..... 122
Windows — Perform tasks on shutdown; Time-stamp your notes; Linux — Disk partitioning
Office Applications..... 123
Office XP — Shortcuts for Word and Outlook
Internet..... 124
Quick and simple searches with Explorer; Get, set IE's Quick Search; Use Google in XP
Hardware..... 125
Get the most from your display and graphics card; Designate your driver; Get unbusy

156

NOKIA
CONNECTING PEOPLE

YOUR BRAND NEW OFFICE.

The Nokia 9210 Communicator is the business person's latest weapon. It's Microsoft Office compatible so you can access, view and edit files such as Word, Excel and Powerpoint. You can also send or receive information by phone, fax, SMS, or e-mail. Everything you need to stay in touch now fits into your suit jacket pocket. So you'll always be ahead of the game. Buy early and register at www.nokia.com.au for your chance to win a Mont Blanc pen.* As if you needed any more inspiration to get one.

NOKIA
9210
COMMUNICATOR

*Visit www.nokia.com.au for Terms and Conditions

cd contents

cd1

TOP SHAREWARE: BACKUP AND RECOVERY PROGRAMS

Backup Plus 6, Backup to CD-RW 3, My Own Backup 2.1, EasyRecovery 5.12, GoBack 3, Iomega Backup 4.4, Norton Zip Rescue 1.0, NTI Backup Now 2, NTI Drive Backup 2, Second Copy 2000 6.2, WinRescue

BROWSERS

- Internet Explorer 6 and add-ons (includes Outlook Express 6, Media Player 7 and more)
- Netscape 6.2
- Opera 6

ESSENTIALS

Acrobat Reader 5, DirectX 8.1 for Windows 98/Me/2000, GetRight 4.5, ICQ 2001b (ver 5.18), MusicMatch 7, Paint Shop Pro 7.04, PGP 7.0.3, RealPlayer 8, 602Pro PC Suite 2001, Visual Basic Runtime Files, Winamp 2.78, WinZip 8.1, ZoneAlarm 2.6.362

LINUX SOFTWARE

Mesa 3D Graphics Library, Loki Demo Launcher 1.0, Simple Direct Media Layer 1.2.2, LBreakout, Overkill, Pingus, Powermanga, Rocks'n'Diamonds, Tuxracer

HELPSCREEN

Six years of Help Screen on CD plus this month's programs:

- Apache 1.3.22
- HTML Validator Lite 2.5
- IE 5 Web Accessories

PATCHES & PACKS

February Exclusive: Creative LiveWare 3.0 for Windows 95/98/Me/2000. Plus IomegaWare 3.1, Logitech MouseWare 9.41.2, Logitech QuickCam 6, Microsoft Intellipoint Software 4.01, Paint Shop Pro 7.04 patch, WordPerfect Office 2002 Service Pack 2

cd2

FREE FULL VERSION: EZ-MIXER SE

Create your own audio mixes with the free full version of EZ-Mixer SE from IK Multimedia.

FREE FULL VERSION: SECUREUP FILESPREAD 1.0

Free full version of the connection utility SecureUp FileSpread 1.0 worth $69 ($US35). Plus the demo version of SecureUp FileSpread 2.0.

LATEST GAME DEMOS

- AquaNox
- Commanche 4
- Myth III: The Wolf Age (single player)
- S.W.I.N.E
- Strife Shadow
- Wizardry 8

READER SUGGESTIONS

- Horas
- GeTGlobalTime
- QuickView Plus
- VirtualDub 1.4.7

TWO FREE
FULL WORKING PROGRAMS

EZ-Mixer SE

1 Mix and play MP3s like a DJ with this free mixing program from IK Multimedia

SecureUp FileSpread 1.0

2 Create direct connections between two computers over a LAN or the Internet

Worth $69*

*Based on $US35, excluding GST

DISCLAIMER

This CD-ROM is provided as a convenience to readers of PC World and has been tested extensively before release. However, PC World cannot be held responsible for any damage to your system caused directly or indirectly by any software on the PC World CD-ROM, corrupted files, faulty CD-ROM media or viruses (or similar programs such as Trojan horses or Worms). Third-party programs such as demos, freeware and shareware are supplied "as is" and PC World does not provide technical support or training for these programs. Any questions you have should be directed to the vendors or authors of the programs. Some freeware, trial, demo or shareware programs may have limited functionality; certain features may not be available in the software, or the programs may cease to work after a certain period.

TECHNICAL SUPPORT & PRODUCT REGISTRATION

The programs on this CD are supplied "as is" from the software vendors. If you are having any difficulties using a particular program on this CD, please contact the software vendor or author. PC World cannot supply technical support, training, registration numbers or passwords for any of the programs on this CD. If the CD is damaged, we will replace it free of charge — see Damaged CDs (lower left) for more details.

VIRUSES

The PC World CD is scanned for viruses. Machines used for producing the CDs are also monitored for unusual behaviour. However, it is highly recommended that you check each CD-ROM for viruses. If you wish to stop the CD's autorun file from starting so you can check for viruses before launching it, then hold the shift key down while inserting the CD into your PC.

The PC World CD will load automatically if you have Windows and a Web browser installed. If you have Linux or BeOS and a Web browser installed, load index.htm from the root directory on the CD. For more information about how to use the CD, see the read–me.txt file in the root directory (d:/read–me.txt, where d: is your CD-ROM drive).
PC World is unable to replace cracked or scratched cases. However, if you have received a damaged CD, please contact Bronwyn Harrison for a replacement.

E-mail: Bronwyn_Harrison@idg.com.au, stating full name and address
or phone (02) 9902 2754
Please allow up to 2 weeks for delivery.

THE EPSON PERFECTION 1650 PHOTO SCANNER HAS HIGH PERFORMANCE SCANNING DOWN TO A FINE ART.

Make a lasting impression with your scanned images using EPSON's Perfection 1650 Photo Scanner. This state-of-the-art colour scanner delivers an exceptional 1600 x 3200dpi resolution for crisp, vivid images every time. It comes complete with a built-in 35mm film strip/mounted slide adapter and together with EPSON's user-friendly Smart Panel software and convenient one-touch operation, it makes the EPSON Perfection 1650 Photo Scanner a real work of art. **www.epson.com.au**

Sydney (02) 9903 9000 Melbourne (03) 9685 6555 Brisbane (07) 3360 0219 Adelaide (08) 8237 0518 Perth (08) 9480 0418

DEMAND ONLY GENUINE EPSON INKS+PAPERS

FOR ARTISTIC RESULTS USE GENUINE EPSON INKS AND PAPERS.

EPSON®

pc world

PO Box 295, St Leonards NSW 1590
Telephone: (02) 9439 5133 Fax: (02) 9439 5512
http://pcworld.idg.com.au
A.B.N. 14 001 592 650

EDITORIAL

EDITOR Amanda Conroy
amanda_conroy@idg.com.au

FEATURES EDITOR Deanne McIntosh
deanne_mcintosh@idg.com.au

NEWS & ONLINE EDITOR Howard Dahdah
howard_dahdah@idg.com.au

TEST CENTRE MANAGER Spiro Hionis
spiro_hionis@idg.com.au

TECHNICAL EDITOR Elias Plastiras
elias_plastiras@idg.com.au

TECHNICAL JOURNALIST Danny Allen
danny_allen@idg.com.au

SUB-EDITOR Karen Leverington
karen_leverington@idg.com.au

CD Production eMEDIA PRODUCER
Scott Mendham
scott_mendham@idg.com.au

DESIGN CONSULTANTS Samantha Keats
samantha_keats@idg.com.au
Lisa Gould *lisa_gould@idg.com.au*

ARTIST Franz-Josef Heber
seppi_heber@idg.com.au

PHOTOGRAPHER Ian Sharp
ian_sharp@idg.com.au

CONTRIBUTORS Alistair Cousins, Denis Gallagher, Rodney Gedda, Merri Mack, Steve Polak, Juha Saarinen, Gavin Sherry, Mark Stafford, Heidi Woof

ADVERTISING

NATIONAL SALES MANAGER
Matt Rigney (02) 9902 2759
matt_rigney@idg.com.au

SALES (NSW/QLD)
Rita Baynash (02) 9902 2725
rita_baynash@idg.com.au
Alison Watson (02) 9902 2703
alison_watson@idg.com.au

SALES (VIC)
Pilar Misa (03) 9690 2933
pilar_misa@idg.com.au

SALES (SA/WA)
Debbie Somers (08) 8339 5118
debbie_somers@idg.com.au

CLASSIFIED SALES & SALES SUPPORT
Linda Bertolissio (02) 9902 2739
linda_bertolissio@idg.com.au

CLASSIFIED COORDINATOR
Iris Clench (02) 9902 2740
iris_clench@idg.com.au

SUBSCRIPTIONS

To subscribe to Australian PC World or to notify a change of address, phone Bronwyn Harrison on (02) 9902 2754 or e-mail to *bronwyn_harrison@idg.com.au*

CIRCULATION MANAGER Dorothy Adams
dorothy_adams@idg.com.au

DISTRIBUTION Gordon & Gotch Ltd

PUBLISHING

VICE PRESIDENT PC DIVISION Mike Udabage
mike_udabage@idg.com.au

WORKFLOW MANAGER Cheryl Podda
cheryl_podda@idg.com.au

PRINTING Printed in Australia by Offset Alpine Printing Pty Ltd

REPRINTS Heather Milley, badgermedia
Tel: (02) 9332 2675
E-mail: *heather@badgermedia.com.au*

IDG COMMUNICATIONS

Australian PC World is published by IDG Communications Pty Ltd

CHAIRMAN & FOUNDER Patrick J McGovern

MANAGING DIRECTOR Don Kennedy

CHIEF INFORMATION OFFICER Ben Gerholt

FINANCIAL CONTROLLER Jon Dowling

Editorial published in Australian PC World may not be reproduced in any form whatsoever without written permission. Copyright 2002, IDG Communications Pty Ltd.

IDG Communications Pty Ltd also publishes ComputerWorld, CIO, Australian Reseller News and Information Age.

Australian PC World is a publication of International Data Group, the world's largest publisher of computer-related information and the leading global provider of information services on information technology. International Data Group publishes over 290 computer publications in over 75 countries. Ninety million people read one or more International Data Group publications each month.

LinuxWorld.com.au

abc 60,628 June 2001

ADVERTISERS INDEX

Accsoft 147
Adaptec 31
AKA 71
Altech 99
APC 33
APD 140
ASUS 19, 69
ATI 148
Australian Computer Online 129
Avanti Hosting 149
BCN 17
BEAM 135
BITS 130
Blue Way 80
Canon 23, 25, 27
Compex 47
Computer Warehouse 143
Corporate Software 132-133
Creative Labs 9
CWS 147
Danware 53
Dell ....Front Gatefold
Digital Star ....IBC, OBC
Diskmax 149
Drake 28
e@pc 93
Easy Refills 148
Electroboard 43
Epson 7
Forte 126-127
Hanimex 73
Infocode 149
InLearning 128
Inventa 151
IPL Datron 41
ISD 147
Kodak 15
MAUS 63
Microgram 131
Microsoft 107
MSI 87
National Communications 150
Netgear ....21`
New Magic 61
New Reality 145, 152
Nokia 5
Opti 37
Paxtons 77
PC Anyware 138
PCClub 139
Pearl 102
Pelham 149
Peripherals Plus 141
Pinnacle Systems 11
Pioneer 39
Powersoft 146
Protac 113, 137
Rectron 134
Rome 35
SATO 59
Seagate 45
Server 101 146
Server 101 151
StroudCo 149
Subscription Coupon 97
Swann 142
Ted's Cameras 79
TPG 51
Tyan 111
Viewsonic 13
Vision Technology 136
Ware.com 149
Westan 29
Xenon 57

Sound BLASTER AUDIGY™

24bit 96kHz/100dB SNR

EAX ADVANCED HD

SB1394

Enter the World of Audigy ADVANCED HD™

Sound Blaster Audigy catapults you into the realm of Audigy ADVANCED HD, a world of high definition audio clarity and realism. Get ready to experience 24-bit/96kHz, multi-channel 5.1 sound at 100dB Signal-to-Noise Ratio, and revolutionary EAX ADVANCED HD technologies for high definition gaming and music. What's more, with SB1394 connectivity, you can now enjoy an insane transfer speed of up to 400Mbps - that's 30 times faster than the USB!

Take the quantum leap in sound with Sound Blaster Audigy!

Sound Blaster Audigy Platinum

Sound Blaster Audigy Platinum eX

Creative Labs Pty Ltd
Unit 10 Discovery Cove 1801 Botany Rd,
Banksmeadow, NSW 2019

Tel: (02) 9666 6100 Fax: (02) 9666 6900
Website www.australia.creative.com

CREATIVE®

When you're trying to foretell the future of technology, to whom can you turn to separate the hyped also-rans from the potential winners? This month, PC World checks out which way the cookie crumbles.

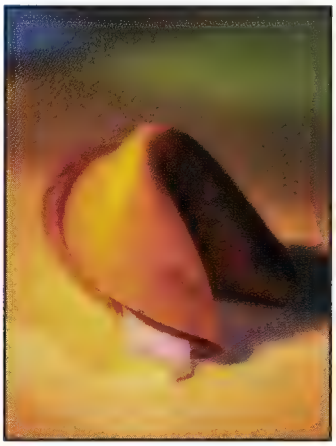
A fortunate life

It is that time of the year again, when the tinsel has been well and truly wound up for another year. And most of our good intentions and resolutions for the new year were long forgotten by the time the bubbly went flat on 1 January (come on, how many of you have really started that health kick, or have given up the cigarettes?).

As we return from the summer break, energised and invigorated to face the year anew, with most of us starting our work and studies again for 2002, we are overwhelmed by the New Year buzz. How will this year be different, what's going to change our lives, and how might we change our own lives as well? This is definitely the time of year when we take stock of who we are, what we are doing, and where we are heading in our lives. Not ones for a spring clean, Aussies like a summer purge. Where do we turn to find the path of enlightenment, to make sure we don't get diddled in 2002?

Recently, I had my fortunes (or lack thereof) revealed by a Chinese fortune teller, who used numerology to guide me on the path to success and happiness this year. As always, some of the responses to the major aspects of my life were, well, a little cryptic, but I thought I'd share them with you nonetheless.

Work-wise, all looks hunky-dory, with the good news that I am employed in the right line of work, and that I use my brain in my chosen profession (well most of the time, at least!). Not only that, but my life axis runs north-south, so it looks like my time spent heading to Sydney's northern suburbs for work is a winner, too. It just means I have to go to Perth via Cairns in the future. On the health front, my stomach is going to give me



trouble, although that may have just been the sushi I ate prior to the fortune reading! On the love and life partner front, I was specifically warned against choosing one of my colleagues as a life partner, and after I heard his fortune, I know why: the Chinese mystic labelled him a womaniser!

Of course, here at PC World we try not to rely on Chinese fortune tellers too much when predicting the latest technology trends that will affect you. All of us get plenty of mixed messages and hype on the technology front, but what we want is to cut to the chase and learn what is really going to change our lives and what we should steer clear of. And in the tech industry, we see more than our fair share of trends that never hit our shores, or ones that take ages to get here and never fulfil the original technology promise.

So, this month, we have done some realistic foretelling of our own, guided by trend watchers, industry experts, and the PC World editors (no — not my Chinese fortune teller), to really see if the future is blindingly bright or just a sparkle on the horizon. While the past few years of tech wrecks and dot-com bombs may have left us a little jaded, we have uncovered 20 of the leading trends and technologies set to make their mark in the next two years. Everything from Arapahoe and AFC hard drives to OLEDs, and plenty in between. Not only have we looked at what's hot — and what makes it is so very, very cool — but we have rated the impact of these innovations on your everyday life, so you know where to cast your future watch.

And, of course, if you really want to know your immediate future visit **www.badcookie.com**. My fortune reads: you will soon be dishonoured by someone you respect! ■

– Amanda Conroy, Editor

PINNACLE STUDIO DV
VERSION 7

Pinnacle Systems
Winner of 8 prestigious
Emmy Awards

Get ready for celebrity

Pinnacle Studio 7 DV video-editing solution and your creativity are all you need to turn your home movies into masterpieces. Pinnacle Studio combines a simple, drag and drop interface with professional features like fast/slow motion, custom audio, over 100 transitions including Hollywood FX 3D effects, advanced color correction, contrast and brightness control, and more. Now with Pinnacle Studio 7 DV, you can go beyond basic editing and create 3D transitions, fast/slow motion, split audio and video tracks, image processing and colour correction, and roll/crawl effects for Hollywood-like scrolling credits. We've added power to the new Studio 7 DV but it's still as simple as it's always been. In just 3 easy steps, you will be creating video like a pro! First you bring your video into your PC from either your Digital camcorder. Then edit it by dragging and dropping the scenes in the ordre you want, adding transitions,effects, sound and titles. Finally, share your creations with friends and family on video tapes, CDs, DVDs, in powerpoint, emails or even on the web.

Studio DV clip	Studio DV ver 7	Studio DV+ ver 7
$299 inc GST	**$399** inc GST	**$499** inc GST

Pineapplehead Distribution :
Suite 2, 3 Wellington Street, Kew, Victoria 3101
Tel: (61-3) 9852 7444 Fax: (61-3) 9852 7400
www.lakovision.com.au

www.pinnaclesys.com/asia

PINNACLE SYSTEMS
The Choice For Digital Video.™

Healthy e-com appetite

BY HOWARD DAHDAH

After having little appetite for online shopping, Australians are now feasting on the idea — literally — with food predicted to be the growing market for this year.

A survey by Pinpoint Research Services expects online shopping by the end of this year to account for $500 million, up from the $340 million spent online in Australia in 2001. What may be surprising to many is the growth areas. According to the author of the report, Tim Walsh, food and groceries is the fastest-growing online shopping category and will grow by 42 per cent to $62 million, followed by travel up 33 per cent to $75.9 million. "Those categories will be the star performers in 2002," he said.

GreenGrocer.com.au's site has reflected this with growth up by 45 per cent on last year. "We have more new customers and our existing customers have increased their basket sizes," said Barry MacDonald, general manager of GreenGrocer.com.au. According to MacDonald, Greengrocer.com.au customers are regular, shopping approximately every 10 days.

In its fourth annual survey of Australian buying habits online, IDC found the top item purchased by respondents was books (almost 40 per cent) followed by video/music (19 per cent) and then travel (17 per cent). Groceries was slightly behind travel, forming 12 per cent of Internet purchases.

Many e-tailers struggled in the initial phases of e-commerce — the classic example being the demise of many high profile shops such as buy.com and TheSpot. One of the stronger e-tailers at present is Wishlist.com.au. However, its CEO, Huy Truong, is realistic about his company's future. "We are still around and, yes, it is good news," he said. ■

com.au gets cheaper

BY HOWARD DAHDAH

The cost of registering a domain name should decrease substantially this year. This follows from the .au Domain Administration (auDA) making AusRegistry a registry operator for a four-year period.

AusRegistry will now perform registry services in second level domain (2LD) names including com.au, net.au, asn.au, id.au and org.au names. It claims it will offer com.au domain names to resellers for $50 — which is less than half of what Melbourne IT has charged — and as little as $11 for org.au. Resellers put their margin on top before selling the domain names to consumers.

The role of registry operator, previously held by Melbourne IT, is to maintain the database of all 2LD. The service will begin once testing and implementation has been completed. No firm date has been set but some time in the first half of this year is likely, according to auDA CEO Chris Disspain.

Depending on the number of requests for domain names in Australia, Disspain said the price that auDA charges Internet registries for each name may also come down. auDA is a non-profit organisation but charges registry a service fee for all 2LD domain names sold in order to cover its costs. Currently, that charge is $11, but Disspain said that if the number of requests for domain names rises, auDA can drop its price to as low as $1 if the demand is there. Those savings would then be passed on to consumers. ■

news briefs

Compaq recalls 5300/5600 Presarios

In December, Compaq recalled all of its 5300 and 5600 series Presario desktops after it discovered the PC's 56Kbps modem did not comply with Australian Communications Authority (ACA) specifications.

Compaq's product manager of Presario desktops, Manpal Jagpal, said the recall was strictly voluntary and in no way did the modems pose a danger to customers or their systems. He said recall was the result of a schematic design change made by the modem supplier between the time of design and production. The fault was identified during a standard Compaq post-production audit.

Compaq's modems are manufactured globally by a third party, but Compaq was unwilling to reveal who that is or how much the recall will cost the vendor. The recall applies to about 5000 units shipped since October 2001.

Sony decides against local PC sales

Sony has killed any plans of introducing desktops into the Australian PC market. The company has said it will push all its marketing and branding awareness into Vaio notebooks instead.

"We will not be mass marketing the desktop," said Ian Morgan, marketing manager in Sony's IT products division. According to Morgan, the desktops — which retail only in the US and Japanese markets — are very high end and not particularly suitable for the smaller market here. "We will look to expand Vaio distribution before looking at desktops," he said.

Times are certainly tough for Japanese notebook makers-cum-PC manufacturers. In November, Toshiba pulled the plug on selling desktop computers in the US and is now focusing on mobile computing and servers. In that market, Toshiba had less than half a per cent of the PC market share, making its entry not worthwhile.

Step up in Style!

High Style and high tech come together in the sleek, sculpted design of our new digital VX500 ViewPanel®. The first in a series of sophisticated LCD's.

Sculpted with a modern metallic bezel, this 15" LCD display combines technical sensibility with stylish ingenuity. Its sleek design and ultra-thin profile make it ideal for professionals with limited workspace. And its multimedia functionality such as powerful speakers and integrated microphone, coupled with our exclusive OptiSync™ technology make the VX500 ideal for applications from office productivity to computer training to video conferencing.

Key Benefits:

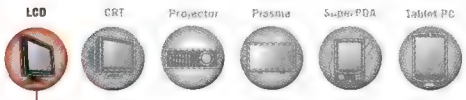
- Full 15" viewable screen
- Response time: 25ms
- Ergonomic design
- SuperClear MVA technology
- Active Matrix colour technology for sharper images
- Built-in speakers & microphone
- OptiSync Technology supports multiple inputs (analog & digital signals)

What else would you expect from a Global Leader in Display Technology?

ViewSonic Australia, Level 4, Suite 403,
213 Miller Street North Sydney NSW 2060.
Tel (02) 9929 3955, Fax (02) 9929 8393,
Internet: www.viewsonic.com.au

Viewsonic Authorised Distributors Australia:
Ingram Micro 1300 653 333
IT Wholesale (07) 3857 7477
Synnex Australia Pty Ltd 1300 880 038

Viewsonic Authorised Distributors New Zealand:
Dove Electronics Ltd, Christchurch (03) 338 4722
Wellington (03) 384 3336, Auckland (03) 622 1500
TMC Computer Ltd (09) 415 1020



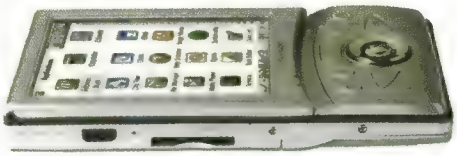
ViewSonic®
See the difference.

*Leading non-captive monitor brand, Stanford Resources Inc. (Monitrak Q1, 2001). Specifications subject to change without notice. Corporate names and trademarks stated herein are the property of their respective companies. Copyright © 2001 ViewSonic Corporation. All rights reserved. [10282-01E 09/01]

Handhelds embed Linux

BY EPHRAIM SCHWARTZ AND MATT BERGER

Sharp has become the first manufacturer to offer a handheld device designed around an embedded version of the Linux operating system. At a recent trade show in the US, the firm unveiled the Zaurus SL-5500, a Palm and Pocket PC lookalike with a few unique differences. The units are expected to ship in the US by mid-February, with a date yet to be determined in Australia.



The SL-5500 will use an embedded version of Linux from Lineo.com, and will include Sun Microsystems Personal Java Virtual Machine as a platform for application development along with Linux.

When Sharp releases the Zaurus SL-5500 to consumers and business customers, its success competing against handhelds running operating systems from Palm and Microsoft will depend at least in part on there being a supply of applications available to run on it. The company claims that, so far, all is encouraging. "We're getting a very enthusiastic reaction from the developer community," said Steve Petix, associate vice president of Sharp's mobile and IT solutions group.

Like the current crop of Pocket PCs, on the inside the Sharp handheld uses an Intel StrongARM processor running at 206MHz. On the outside, the unit features a QWERTY keyboard hidden behind a sliding cover and a 3.5in reflective TFT LCD screen with 240x320 pixel resolution.

Unlike most other handhelds, this unit has multiple expansion capabilities including a Compact II slot, a Secure Digital slot, and serial and USB ports. The Compact II and SD slots could allow simultaneous use of accessories, an expansion approach that has been lacking with other major devices. ■

Nimda takes top spot

BY LAURA ROHDE

The Nimda worm took honours as the most destructive worm or virus of 2001. Nimda accounted for 27 per cent of all reports received by Sophos's help desk last year, followed by the Sircam virus at 20.3 per cent, according to Graham Cluley, senior technology consultant at Sophos, following the release of its annual list of the top 10 viruses for 2001.

According to Cluley, the antivirus company detected well over 11,160 new viruses, worms and Trojan horses last year, which just about brings the virus total to 70,000. In general, there are about 40 new viruses a day, or 1200 every month. Each month, about 30 to 40 of those viruses break into what they call "the wild" and cause serious problems, Cluley said.

At number three was Magistr with 12 per cent of all reported infections, then Hybris with 6.2 per cent, Apology with 3.8 per cent, VBSWG-X with 3.6 per cent, Kakworm with 3.1 per cent, SST-A with 2 per cent, Badtrans with 1.8 per cent and Navida at number 10 with 1.8 per cent, Cluley said. The remaining 18.2 per cent of reported infections came from a variety of smaller viruses, he said.

Cluley warned that the creation and spread of viruses, worms and Trojan horses is only going to proliferate, due to the fact that the viruses are becoming increasingly easy to write because virus-generating toolkits are freely available over the Internet. ■

news briefs

Dell falls foul of ACCC

Dell Australia has been cited by the ACCC to appear in the Federal Court, Sydney, in February to respond to allegations the direct PC vendor has engaged in false, misleading and deceptive conduct.

The Commission alleges that Dell – in national newspaper/magazine advertising, and on its Web site – failed to indicate that the delivery charges for its PCs were compulsory, thus failing to accurately state the cash price of its goods. The ACCC cites section 52 of the Trade Practices Act 1974, which prohibits conduct by a corporation that is misleading or deceptive; section 53(e), which prohibits a corporation from making false or misleading representation concerning the price of goods; and section 53C, which requires corporations to state the cash price of goods in certain circumstances.

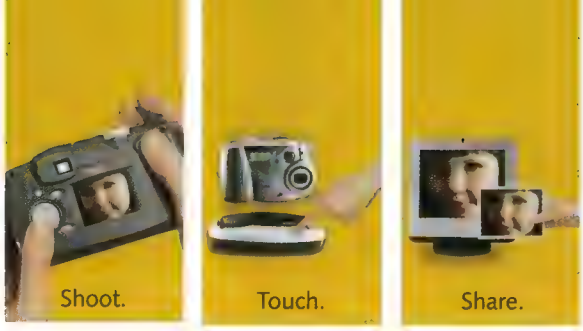
As a result, the ACCC is seeking court orders including injunctions restraining Dell from advertising in the same way in the future, and refunds of the delivery charges for affected consumers.

Banking on Benq

If you have gone shopping for a digital camera or plasma screen recently and been greeted by a new brand called Benq, don't be too taken aback. After over a decade of running with the Acer brand name, Acer Group has decided to change the name of its affiliate company, Acer Communications & Multimedia, to Benq Corporation.

The core focus of Benq's offering will be in "digital life devices" including mobile phones, networking, LCD and CRT monitors, digital projectors, plasma displays, optical storage and imaging products. The company says it will bring out 22 new products under the Benq name in the first half of this year.

Although the name is different, Benq will continue to offer after-sales service for previous Acer-CM branded products. Notebooks, PCs and server naming remains unchanged and will continue to be branded as Acer.



Easy to shoot.

Easy to share.

Introducing KODAK EasyShare™ Digital Camera and Dock. It's digital photography made simple. Just shoot a picture with a KODAK DX Digital Camera, place the camera into its dock and touch the button. Pictures are automatically sent to your computer, ready to e-mail, print and share. Revolutionary? Let's say digital photography couldn't get any easier. For more information go to www.kodak.com/go/easyshare or call 1800 147 701.

Share Moments. Share Life.™

© Eastman Kodak Company, 2001. Kodak, EasyShare and Share Moments. Share Life. are trademarks. 7/01

Fake Epson cartridges

BY HOWARD DAHDAH

If you thought it strange that your recently purchased Epson inkjet printer cartridge ran out of ink soon after installion, or was of poor ink quality, the probable reason is that it was a fake. Epson has announced the seizures of over 6000 counterfeit cartridges with a street value of more than $350,000, after two separate raids on reseller premises last year.

The fake cartridges were being manufactured in China and sold to two resellers in Australia. Their names have been withheld. Action is being taken under the Trade Practices Act and the Australian Trademarks Act.

The cartridges belonged to the company's mid- to low-end inkjet products, including the Epson 480, 580 and 680 printers. Only monochrome cartridges were seized.

An Epson spokesperson said that although a large number of counterfeit cartridges were seized, chances were high that others have slipped onto store shelves. The spokesperson said the cartridges were "discernible as being different", explaining that clues include poor cardboard packaging, which is much thinner and soft, and printing on the box, where the colour tends to fade.

Epson said customers who feel they have picked up a counterfeit cartridge should take the cartridge back to the place of purchase and ask for a refund. ■

Pay music service debuts

BY SCARLET PRUITT

Music file swappers may not be too enthused, but Listen.com managed to squeeze out other anticipated music subscription services in December by launching its Rhapsody digital music streaming service — the first paid-for music subscription service on the Net. Although Rhapsody beat other long-awaited subscription services such as Pressplay and MusicNet, the service has still to attain the major-label content they already have. It currently features content from 46 independent record labels.

For a monthly fee, Rhapsody offers unlimited streaming on-demand playback, as opposed to the download from other nascent subscription services. Also included are free Internet radio from more than 50 stations, creation and sharing of playlists, and editorial reviews and recommendations from Listen.com staff.

The service offers three different subscription options. For $US5.95, consumers can opt for either the Sampler program, which offers a catalogue of varying musical genres such as rock, blues, country and electronica, or the Naxos Classical catalogue, which offers classical music from the label Naxos of America. The Sampler Plus option combines these catalogues into a single subscription service for $US7.95 a month.

Rhapsody content partners include independent labels JamDown Records, 26.2 Music, Jazzateria, Slimstyle Records and Eroica Classical Recordings. The company said that it will continue to add to its catalogues, which currently boast over 30,000 songs. ■

news briefs

Windows XP arouses ire

Former Italian president Francesco Cossiga, a technology buff, has publicly criticised Microsoft over its Windows XP operating system.

"Advised by the experts of the [Italian] Senate, of which I am a life member, I had your new program Microsoft XP Home installed on my very powerful personal computer, which went into tilt after two days," he protested in a fax to Microsoft's Redmond headquarters. "Neither my friends nor the Italian subsidiary of Microsoft can solve the problem, with the risk that the computer's hard disk will have to be reformatted."

Cossiga wound up his letter, addressed to Bill Gates in person, with a word of advice: "Perhaps, my dear, young Mr Gates, before putting your new products on the market with so much publicity you should have them tested for longer and with greater care."

Sharp develops 16GB flash memory

Sharp, in association with Japan's Tohoku University, has developed technology that enables flash memory to hold more than 16GB of memory, 250 times more than the current 64MB flash memory on the market.

Sharp expects greater demand in the near future for large-capacity memory in mobile devices, for faster and smoother high-volume data at lower power, said Tetsuya Igarashi, a spokesman for Sharp. In existing flash memory, the memory cells are placed on a two-dimensional surface. However, developers at the two research centres succeeded in stacking the cells in a three-dimensional arrangement. Flash memory does not lose its content when power is removed, and can be rewritten.

So far, memory cells have been piled in two layers to demonstrate the basic technology for three-dimensional flash memory, and the developers are planning to pile cells four- to eight-layers high, Igarashi said. Sharp expects to commercialise the technology by 2006.

Leadtek®
We Make Dreams a Reality

WinFast Titanium series

World's First VGA card made compatible with Windows XP

Brand New look
Coming your way

http://www.leadtek.com

WinFast Titanium 500 TD

- nVIDIA GeForce3 Ti 500 GPU
- 64MB DDR Memory

WinFast Titanium 200 TDH

- nVIDIA GeForce3 Ti200 GPU
- 64MB DDR Memory

WinFast Titanium TH

- nVIDIA GeForce2 Ti GPU
- 64/32MB DDR Memory

WinFast Titanium 500 TD

★nVidia's flagship GeForce3 Ti 500 GPU
★enhanced chipset/DDR memory clock up to 240MHz/500MHz
★TV-out with resolution up to 1024 768, 8 sets of filters provide better quality
★Oversized active cooling-fan heat sink
★WinFox Driver provide most stable overclocking environment
★3D calculation speed at an unbelievable 960 million operations / sec
★Fill rate at an incredible 3.84 billion AA samples/sec

2 YEAR WARRANTY

Software Pack

DirectX8 and T&L 3D games included
GUNLOK, DRONEZ (full retail version)
WinFast DVD from Leadtek
True Internet Color, Colorific, 3Deep, Cult3D

Leading Brand In Graphics Technology

SOLE AUTHORISED AUSTRALIAN DISTRIBUTER

NSW Office	VIC Office	QLD Office
51 Hill Road	41 Brady Street	2 Mayneview Street
Homebush Bay	South Melbourne	Milton
NSW 2140	VIC 3205	QLD 4064

BCN Technology
www.bcntech.com.au
sales@bcntech.com.au
enquiries 02 9648 0039

Memory cost to drop

BY SUMNER LEMON

A US-based startup says it will introduce a single-use memory chip that will be up to 10 times cheaper to produce than existing memory types. Officials at Matrix Semiconductor said the company's Matrix 3D Memory is a single-use chip — it permits a user to store data that cannot subsequently be erased — that will find its way into a variety of consumer devices, such as digital cameras, MP3 players, PDAs and mobile phones.

Matrix 3-D Memory chips are expected to be so cheap — up to $50 less than a comparable device based on flash memory — that consumers will be able to afford to use them once, as with blank CD-recordable media or camera film, the company said in a statement. A single 64MB memory card will be able to hold up to two hours of MP3 audio files or 65 3.3-megapixel images. When the devices go on sale, they are expected to cost around the same as a roll of 35mm film, according to the company.

The technical advance is the 3D chip design, which reduces production costs by increasing the density of transistors on a chip by stacking them in layers, rather than only spreading them horizontally, as is currently done in chip design.

Matrix has received financial backing for the development from Microsoft, Sony, Eastman Kodak and Thomson Multimedia SA. ■

Corel's new roadmap

BY ED SCANNELL

It may be down, but Corel reckons it is not out. After failing with its pursuit of Linux, Corel has now outlined a new initiative that it hopes will bring the company to profitability by 2003.

Life for Corel is now a long way from WordPerfect. Corel president Derek Burney said the company's future business will focus on leveraging existing technology assets, which include internal assets and those it has acquired, most notably Micrografx and SoftQuad.

Corel will also make significant investments in higher-growth emerging enterprise-class markets, such as technical illustration, EPM (enterprise process management), and XML (Extensible Markup Language) content solutions.

"These investments will impact our bottom line in the short term, but we are confident [they] will pave the way for significant growth over the long term," Burney said.

The key customer segments Corel will focus on include Prosumer, where the company will sell its Corel Draw product; its recently delivered Procreate series, which includes its premium brand of graphics products; the business, government, and legal markets, where its WordPerfect desktop suite will be aimed; EPM, where its Six Sigma product will be sold; and the technical illustration and professional graphics markets, where a number of its products will be sold.

Reviewing the year 2001 and the promises it had made as part of its three-horizon strategy outlined last January, Burney said the company accomplished all of its stated goals for the three- to 12-month Horizon One stage. One such goal included selling its Linux desktop operating environment business to fellow Canadian company Xandros in mid-2001. ■

news briefs

SF delivers bill for IBM's Linux love notes

The city of San Francisco quashed some of the warm, fuzzy feelings associated with the Linux operating system when it reached a settlement with IBM that will have the vendor pay $US120,000 to compensate the city for damages caused by a "guerrilla" marketing campaign centred around Linux.

In April last year, IBM began spray-painting Linux advertisements on the streets of San Francisco, New York, Boston and Chicago, hoping to raise interest in the operating system. Although the logos — a peace symbol, a heart shape and a tubby penguin — stirred the public, they also triggered the ire of city officials.

Describing IBM's actions, Gavin Newsome, supervisor for San Francisco city and county, said: "It is contrary to what we are trying to do, which is to add to the beauty of San Francisco and make a clean place to live."

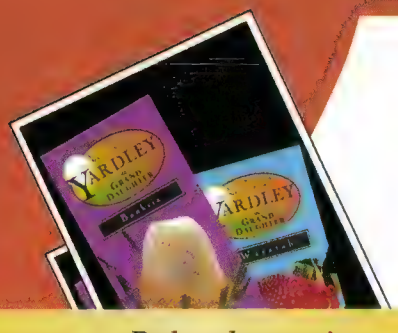
Sun goes to Mars

Sun Microsystems has taken a break from Microsoft bashing. This time it is doing something science buffs may appreciate: the company is sponsoring a new exhibition detailing life on Mars, called "To Mars and Beyond: Search for the Origins of Life", at the National Museum of Australia in Canberra.

As part of the sponsorship, the company's Enterprise 420R workgroup server and eight Sun Ray Enterprise Appliances will run all the applications. One application will allow visitors to travel to Mars and across its red surface in a 3D virtual reality theatre styled as the interior of a spaceship.

One feature of the exhibition is a massive 6tonne, 2.7 billion-year-old stromatolite (rock), showing evidence of the oldest life on Earth — but there are more modern things, such as the latest in robotic technology. The exhibition runs until 26 May 2002. ■

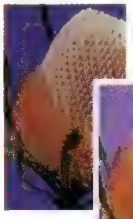
I can...



Reduced operating costs.
A Super Economy mode vastly improves operating economy without the definition sacrifices common to so many draft modes. It effectively quadruples output from both the black and colour cartridges.[1]

...fit even the tightest budget.

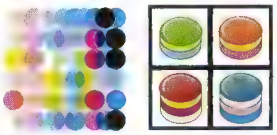
Brilliant plain paper photo quality, automatically.
A selectable function called Photo Optimiser is included in the printer control software. It automatically adjusts for defects in exposure, highlights and shadows, and prints accordingly with standard inks designed to optimise quality on low-cost plain paper.



Before.

After.

Superior photographic reproduction.
The optional PhotoRealism™ cartridge is ideal for high resolution papers. Low-density inks vary colour saturation per dot to dramatically increase the colour combinations, reduce grain and smooth tones.



PhotoRealism produces colours between colours.

BJC™-1000SP
colour Bubble Jet™ printer

Just $129[RRP]

High quality blacks at high speed.
The optional high capacity black ink cartridge uses 64 print nozzles for high print speeds. The selectable text smoothing mode goes up to 720 dpi to maximise text quality.

Optional BC-03 black ink cartridge.

Better Internet images.
Image Optimiser, a printer control software feature, automatically "corrects" low-resolution images up to the printer's maximum resolution.

Canon Customer Care.
The one-year warranty is upgradeable to three years for a minimal charge, and is backed by Customer Care hot-line support. For more information call 1800 021 167.

3-YEAR WARRANTY OPTION

You can...

Canon

Price shown is recommended retail price including GST. Canon® and the Canon logo are registered trademarks, and Bubble Jet, BJC and PhotoRealism are trademarks of Canon Inc. 1. Capacity for colour based on A4 pages at 7.5% coverage. Capacity for black & white based on A4 pages at 5% coverage per page. Specifications are subject to change without notice. Canon Australia Pty Ltd ABN 66 005 002 951. CS0667/1

alt.net

theme occurred last year when one disgruntled fan re-edited The Phantom Menace. Like many hard-core groupies, this fan felt the film was let down by its production and was irritated by the Jar Jar Binks character. The anonymous editor retitled the film The Phantom Edit 1.1. Around 17 minutes of the film were removed and most of Jar Jar's scenes wound up in the digital wasteland. The most striking aspect of The Phantom Edit is that it appeared to be re-cut by a professional — something that has raised much speculation and rumour.

What makes this release even more interesting is that it is spreading across the Web, all the more so given the huge size of the file (1GB in VCD MPEG format or about 300MB as a DivX file). Distribution has occurred through file-sharing programs such as KaZaA and WinMx, and others have then burned the files back to VCD or dumped them onto videotape. The mass distribution now means the film has crossed the non-commercial boundary and there are reports that Lucas Films has set about halting it. For more information try the unofficial Phantom Edit Web site at **http://members.onecenter.com/hollywood/phantomedit**.

There have been many side-plots to this saga. The best round-up is probably the movie site Zap2It (**www.zap2it.com**). Use the site's search feature and type in "Phantom Edit".

Phantom Edit lops 17 minutes off the Star Wars prequel.

Music video

Another area where fans create new artwork is music video. Budding editors produce completely new clips by cutting down a movie and matching it to a song. The most popular source for film footage is Japanese Anime.

While some efforts are a good match between song and film, others miss loads of good opportunities. Typically, the fan analyses the song lyrics and matches them to scenes from a particular film. For example, the song 'Push It' by Garbage has lyrics such as "My head explodes and my body aches", which is a perfect line for a Manga/Anime film. (The Push-It clip uses footage from Kite and Battle Angel.)

To see a collection of around 15 of the videos, head to **www.planetdiablo.com/es/files.html**, or use any popular file sharing program that supports video files. Beware, viewer discretion is advised: many Anime/Manga films are not for the faint-hearted and often depict scenes of graphic violence.

All your base are belong to us

If you were asleep for most of last year, you would have missed the "All your base are belong to us" phenomenon — probably one the largest collaborative works on the Internet. The title comes from the mangled English spoken by a character in Zero Wing, a computer game released in 1989. A Flash video has appeared on a large number of sites and features samples from the game, a re-mixed techno soundtrack and an endless collection of edited photos that all feature the words "All your base are belong to us". You can view a copy at **www.stileproject.com/base.html** or for a succinct history try **http://hubert.retrogames.com/article.php?sid=1**. ■

online news

Opera upgrades Windows browser after beta success

Web browser company Opera Software ASA has launched Version 6.0 of its desktop browser for Microsoft's Windows operating systems. The new browser runs on all versions of Windows, including the recently released XP.

Among the improvements in the new version is the choice of either displaying multiple documents each in a separate window, as is the case with Microsoft Internet Explorer or Netscape or, instead, displaying multiple documents as tiles within the single browser window, as has been standard on earlier Opera versions.

Version 6.0 for Windows, which is sponsored by advertising, is available free for download from the company's Web site. Users can then, if they choose, register to avoid banner advertising by paying a fee of $US39.

AOL joins Liberty Alliance

America Online has agreed to join the Liberty Alliance Project, giving a boost to this initiative to build a user-authentication system for the Internet and provide an alternative to Microsoft's competing Passport authentication technology.

Launched in September by Sun Microsystems and other companies, such as Nokia and General Motors, the Liberty Alliance is working to build a common technology that enables Web users to enter only once the personal information they will need to access password-protected Web sites and perform other online transactions. The Liberty Alliance is also aiming to make the service decentralised so that it isn't governed by any one company.

AOL will become the 34th member of the coalition, paving the way for its approximately 32 million subscribers to eventually use the Liberty Alliance service. ■

Exquisite Mobility

A touch of elegance with high-performance

Sexy Ultra-Light Design

Sleek Built-In Wireless LAN

Sophisticated Performance

A sexy silver magnesium-alloy casing harnesses the power of the advanced Intel® Pentium III®-M mobile processor, while a built-in 802.11b wireless LAN card is subtly hidden inside a sleek design for the ultimate portability and connectivity. The ASUS® S1 is a lot more than just a notebook, it's a technology masterpiece.

broadband

ACCC watches Telstra

BY HOWARD DAHDAH

A stern warning by way of a Competition Notice issued to Telstra late last year by the ACCC has had an effect on the carrier's provision of wholesale ADSL pricing, resulting in reductions of more than 30 per cent for some Telstra wholesale broadband ADSL services, the consumer watchdog has claimed.

"These likely price cuts are encouraging, as are the further changes that Telstra has committed to," said Professor Allan Fels, ACCC Chairman. "However, the full impact of these changes on the level of competition amongst high-speed Internet service providers will take some time to play out. Accordingly, the ACCC has decided not to revoke the Notice but rather extend the time available for Telstra to amend its conduct before it is potentially exposed to significant penalties."

The Competition Notice was issued in September 2001 by ACCC, giving Telstra 12 weeks to change its conduct relating to the supply, structure and configuration of its ADSL wholesale services "in order to allow other ISPs to effectively compete with its retail BigPond Internet service". Despite recent changes, the ACCC said it remained concerned. "The ACCC will now keep the Competition Notice in place and seek further information from the industry to ensure more widely available price reductions are implemented to overcome the price squeeze between Telstra's wholesale and retail prices, and ensure planned network upgrades are delivered," read a statement by the ACCC.

Consequently, the ACCC has given Telstra until mid-March to bring about further promised pricing and network changes. If Telstra fails to fulfil the request of the Notice, it can face fines of up to $10 million a day or be taken to court. ■

Lack of integration hits ADSL

BY HOWARD DAHDAH

Although Telstra suffered constant criticism last year for its pricing and the performance of its ADSL network, it is not entirely fair to blame the carrier for all the nation's ADSL woes.

According to Shara Evans, managing director of Telsyte (a consultancy and research organisation that specialises in broadband technologies), many of the hiccups affecting ADSL subscribers revolve around the integration of multiple vendor technologies.

"The technology [ADSL] itself is quite sound," Evans said. The tricky bit is when it is integrated in multiple vendor settings — namely the DSLAM (DSL Access Multiplexer) that combines voice and DSL traffic onto a customer's DSL line and directs it to the appropriate carrier's network.

DSL is only used on the copper pair that runs from a subscriber's home to the local telephone exchange. From the exchange, the DSLAM has to connect back to the network. "It is this backend cloud where the problems are," Evans said.

According to Evans, when you have a combination of vendor hardware equipment, broadband carriers soon discover that it is not a simple case of plug and play. In theory, that should be the case, as all the major hardware vendors claim to be standards-based. "So designing the network becomes very difficult and its complexity increases with scale." ■

broadband briefs

Airborne Web surfing on hold

Connexion, a project by Boeing to put high-speed Internet connections in its planes, looks unlikely to take off on time, as its three airline partners in the joint venture — American Airlines, Delta Air Lines and United Airlines — have decided to pull out of the project.

In light of their severe financial losses following the 11 September terrorist attacks in the US, the airlines withdrew their financial support of Connexion, said Charlie Miller, Boeing spokesman. Lufthansa is the company's only active partner on the project.

"The plan now is to have the pilot program up and running with Lufthansa by late 2002 or early 2003," Miller said. Announced in June 2001, Connexion was to be installed in up to 1500 airliners from mid-2002, and was to offer two-way broadband e-mail, Internet, corporate intranet, live television and other entertainment services via satellites.

NZ DSL download dispute settled

A New Zealand IT consultant has settled a dispute with Telecom NZ, which has agreed to compensate him for JetStream DSL charges incurred by his children on an Internet file-swapping service. Part of the agreement was that there be no public comment on the terms of the deal.

Auckland-based Ian McTavish concedes the primary party to blame is the music-sharing service morpheus.com, run by MusicCity. When a customer requests a download of a music track, he or she gives implicit permission for other users to share that download — to acquire the data from the user's PC — with the cost of the upload traffic being charged to the original user.

McTavish's children were downloading music tracks, unaware that they had given permission for up to 100 other users to trigger uploads from their computer. The total cost of the unwitting uploads was about $NZ10,000 over three months. ■

GO WIRELESS

SOLUTIONS FOR BUSINESSES ON THE GO!

The new range of high speed wireless networking products from NETGEAR mean that you never have to be tied down by your cabling again.

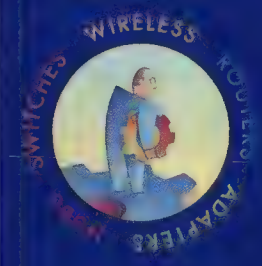
Standards based 802.11 wireless solutions allow you to share network resources without the need for cables. These products can also be integrated with existing wired networks or broadband connections to allow you greater flexibility than ever before.

NETGEAR puts a lot of thought into making networks better for you. That's why NETGEAR is now the leading SME networking solution provider offering plug and play solutions combined with Toll Free support 7 days a week, 24 hours a day.

NETGEAR®
Everybody's connecting.

1800 502 061 www.netgear.com.au

Available from leading computer dealers and resellers.



CABLE / DSL ROUTERS

WIRELESS

SWITCHES

HUBS

NETWORK CARDS

STARTER KITS

FIREWALLS / VPN'S

PRINT SERVERS

Selby On Strategy 3599

alt.net

fan art

But is it art?

BY SCOTT MENDHAM

The Internet is littered with sites dedicated to celebrities, film, music and games. In parallel to these sites, fans have devised more creative ways to express their obsessions. This can range from remixes of songs to the creation of erotic art and, in more sophisticated examples, unofficial re-cuts of film and music video.

Not surprisingly, these new creations often attract the ire of the original artists who claim that posting these creations on the Internet is publishing — and therefore violates copyright. At the other end of the spectrum, some companies realise the value of allowing fans to create their own, derivative works. This is particularly evident in the gaming industry, where new levels, monsters and maps can be added to existing games, which in turn help prolong the game's shelf life.

Mods

For several years, many game developers have provided fans with the tools needed to devise new levels. Programs such as Qoole (**www.qoole.com**), WorldCraft (**www.valvesoftware.com**) and QERadiant (**www.qeradiant.com**) allow players to edit existing games, as well as develop 'Mods'. Mods, short for modifications, are the most intriguing form of game fandom. Instead of simply building a new level with familiar creatures and design, they often involve completely new storylines, characters and enemies.

Since Mods are developed by fans, there is negligible cost to the game developer but they can help maintain interest in a game long after a player has beaten it three times over. Each new Mod is another unique game for the user to experience and, if well executed, can give gamers an experience that equals the original.

Most Mods are created by die-hard fans with an interest in game development. Some of the more creative efforts go into the development of Mods for Half-Life. This alien-hunting game is set in the US desert and an alien world, but Mods have also transformed the game through new settings like that of 1950s' Gothic horror films (the best is 'They Hunger'), pirate adventures, parodies of "Apocalypse Now" and more.

Mods are free to download and can be found at a number of sites. A good place to start looking is **www.fileplanet.com**, but for Mods for a specific game, head to the other 'Planet' sites such as **www.planethalflife.com**, **www.planetquake.com** or **www.planetdiablo.com**.

In order to install a Mod, you will need a full copy of the original game and, in some cases, the latest official update. Mods vary in size from 2MB to 100MB, depending on the game.

The phantom edit

When it comes to film fans, there are few groups who could match the dedication of Star Wars fans. George Lucas, the maker of the Star Wars series, has been quite tolerant of fans creating their own artwork based on the movies — provided it is for private and non-commercial use. Fans are even encouraged to create their own pages on the Star Wars servers (**www.starwars.com/site/faq.html**).

One interesting twist in this

online news

Cops swoop in child-porn net

The UK National Crime Squad recently arrested 130 people worldwide, including one from Australia, who are believed to be regular participants in an online paedophile newsgroup.

Recent amendments to the UK Data Protection Act, following the 11 September attacks, can force ISPs to keep customer information, including keeping track of their Internet movements, for three years. "Demon's [a UK ISP] information was vital and more in-depth records will help us in our fight against child porn," said a spokesperson at the National Crime Squad.

Data held by Demon recorded the activity of nearly 1500 newsgroups over a two-week period, revealing that almost 10,000 IP addresses had accessed 30 paedophile sites. These addresses were then whittled down to include only those people responsible for distributing images.

WWF goes for CRM body slam

Facing sliding revenue and a major restructuring, World Wrestling Federation Entertainment (WWFE) has rolled out software that it hopes will unite its various customer relationship management (CRM) efforts and let it recapture lost revenue.

The sports entertainment giant has gone live with applications from Escalate that will power its electronic storefront and catalogue, WWFShopZone.com. The system allows WWFE to do things such as automate e-mail campaign management and slice and dice customer data to detect its fans' buying habits by geography, wrestling event or item. It also allows more selective targeting for sales efforts, said CIO Bob Berry.

"Fans want the latest and greatest," said Mark Macchiarulo, vice president of product and brand marketing at the WWFE, and the new setup allows the company to send out e-mail with the latest story lines and product offerings.

I can...

Exceptional results, easily.
The inks are optimised for plain paper. Quality can be automatically enhanced with Drop Modulation Technology™ with variable drop sizes. These are placed in any of five combinations to smooth colour gradations and improve tonal quality.

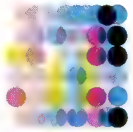
...get exceptional quality, very affordably.

Better internet images, special effects.
Image Optimiser can automatically "correct" low-resolution Internet images up to the printer's maximum resolution. Turn photos into simulated illustrations and create sepia hues, print banners up to 6 A4 pages long, overheads and even T-shirt transfers.

Duplexing, high speed blacks.
The driver allows manual duplex. For B&W only, an optional dedicated black ink cartridge with 128 print nozzles offers print speeds up to 5 pages per minute.[1]

Reduced operating costs.
Super Economy mode improves operating economy without the definition sacrifices common to many draft modes. It effectively quadruples output from both the black and colour cartridges.[3]

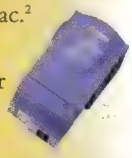
5 times the colour.
Optional PhotoRealism™ inks vary the saturation per dot. This produces up to five times as many colour combinations as conventional CMYK inks for better half-tones and less grain.



PhotoRealism produces colours between colours.

Built-in parallel and USB interfaces for Windows and Mac.[2]

Optional scanner cartridge captures colour photos with resolutions up to 360 dpi.



Automatic Image Improvement.
Advanced colour routines help define half-tones. Photo Optimiser automatically adjusts for defects in exposure, highlights and shadows and prints accordingly.

BJC™-2100SP

colour Bubble Jet™ printer

USB

Just $169[RRP]

Canon Customer Care.
The one-year warranty is upgradeable to three years for a minimal charge, and is backed by Customer Care hot-line support. For more information call 1800 021 167.

3 YEAR WARRANTY OPTION

You can...

Canon

Price shown is recommended retail price including GST. Canon® and the Canon logo are registered trademarks, and Bubble Jet, BJC, Drop Modulation Technology and PhotoRealism are trademarks of Canon Inc. Microsoft®, Windows® and Windows NT® are registered trademarks of Microsoft Corporation in the US and other countries. Apple®, Macintosh®, Mac® and Mac OS® are registered trademarks of Apple Computer Inc in the US and other countries. All other trademarks are the property of their respective owners. 1. Duplex printing for Windows® 95 Windows® 98 only. B&W print speeds require optional black ink cartridge. Print speeds may vary with the content of the document & the processing speed of the host computer. 2. Printer driver support is provided for Windows® 95 Windows® 98 Windows® 2000 Windows NT® 4.0 via the parallel port. USB interface can only be guaranteed with pre-installed Windows® 98, Windows® Me and Windows® 2000 and Mac® OS 8.1+ or 9.X. 3. B&W output for BC-20 ink cartridge at 1500 characters per page and colour output for BC-21e measured at 7.5% coverage. Specifications are subject to change without notice. Canon Australia Pty Ltd ABN 66 005 002 951.

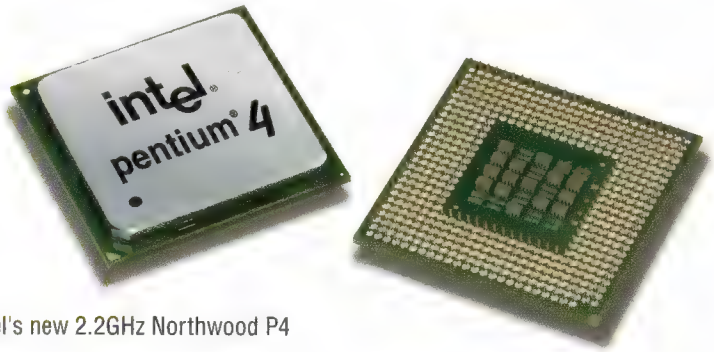
CS0667/2

tech.files

Athlon slayer arrives

BY SPIRO HIONIS

The new year introduced the new Pentium 4 processor and new Intel chipset supporting DDR memory. You may remember in 2001 that the last 0.18-micron P4 chip sprouted extra pins and went from using a PGA423 Socket to an mPGA478 Socket. This means it shrunk in size dramatically and had more pins that made it a better processor.



Intel's new 2.2GHz Northwood P4

It has also helped Intel to transition us to the newly released Northwood P4 CPU that also uses an mPGA478 socket but is based on the new 0.13-micron manufacturing process. During the transition period you will find two types of 2GHz Pentium 4 CPUs on the market — raising questions about prices, differences and which one is better.

At the time of writing, Intel was unable to supply specific pricing for the new processor although it expected complete systems to cost around $US1500 at the time of release. When queried, supporting vendors said that they expect a price variation of around 10 per cent between the older 2GHz chip and the newer one.

The easiest way to tell the difference between the two processors is by the Level 2 cache. The older CPU is based on 0.18-micron architecture, has a Willamette core and a 256KB cache; the newer one, based on 0.13 architecture, has a Northwood core and a Level 2 512KB cache. Cache information can be displayed using a variety of diagnostic utilities, which are easily obtainable. You will find Intel's own CPU ID utility at **http://support.intel.com/support/processors/procid**.

The next thing to consider is that the 0.18-micron 2GHz P4 is about as fast as a chip can get using this manufacturing process. In contrast, the 0.13-micron 2GHz P4 is only the beginning of its line: processor speeds for the P4 are expected to hit or even exceed the 3GHz mark by the end of the year.

Performance put to the test

Intel conducted performance tests using SYSMark 2001, which yielded some interesting results. The new 2GHz and 2.2GHz processors were tested against the older 2GHz version, with results indicating a performance variation of approximately 5 per cent between the older 2GHz CPU and the newer version,

Continued page 28

tech.news

Chip circuits shrinking

The Semiconductor Industry Association (SIA) is calling for a more aggressive push to smaller circuit sizes than previously planned. The majority of today's PCs use processors with a circuit size of either 180 nanometres (0.18 microns) or 130 nanometres (0.13 microns). The new International Technology Roadmap for Semiconductors (2001) shows that the industry plans to deliver 90-nanometre circuits by 2004, and 22 nanometre circuits by 2016, the SIA said.

To put that into perspective, the width of a human hair is about 100,000 nanometres. Shrinking the size of circuits has been largely responsible for the dramatic improvements in chip performance over the past decade. These figures surpass the organisation's previous roadmap, released in 1999, which called for 100-nanometer circuits by 2005, shrinking to 35 nanometres by 2014.

As circuits shrink, the performance of chips can be increased without greatly increasing power consumption or the amount of heat generated. Companies can also get more chips from each silicon wafer by using a smaller process, which helps keep prices lower. Intel said early last year that the 0.13-micron manufacturing process allows it to cut approximately twice as many chips as the 0.18-micron process from a wafer of the same size.

The ITRS roadmap looks 15 years into the future, and provides the industry with guidance about what to plan for in the future. It's arrived at by consulting 800 semiconductor experts from around the world, the SIA said.

"In the past, this has been a major synchronisation method for the industry," said Nathan Brookwood, principal analyst with consultancy Insight 64.

Motorola launches hybrid chip family

A range of devices including MP3 audio players and IP (Internet Protocol) phones will cost less and take less time to build following the unveiling of a family of hybrid chips from Motorola.

The new family of processors, the 56800E series, is Motorola's first chip family to offer the functionality of a microcontroller and a DSP (digital signal processor) on the same chip, said Michael Ponzo, director of marketing for Motorola's DSP standard products

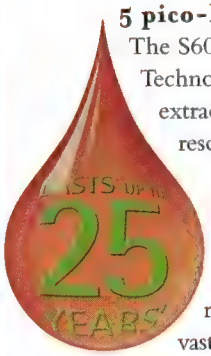
Continued page 28

I can...

Super fast, fast mode.
A special fast mode combines an extra large print head capable of up to 12 million ink ejections per second with four drive motors. The paper feed is up to 70% faster, and is enhanced by a 20% greater data compression ratio. This allows fast mode to print up to 15 monochrome pages (text), and up to 10 colour pages per minute.[1]

...print up to 15 B&W pages per minute.

5 pico-litre drops for 2400 dpi.
The S600 uses MicroFine Droplet Technology to precision-place extraordinarily small ink drops at resolutions up to 2400 x 1200 dpi.



Better colours that last longer.
The S600 inks produce more vivid colours for improved reproduction on plain paper, and deliver sharper, blacker rendering of monochrome text. The ink range also offers vastly improved light fastness. In a simulated fading test, they have been shown to last up to 25 years using ISO standards for levels of acceptable fading when printed on Canon Photo Paper Pro.[2]

Smart ink monitoring.
Inks are contained in separately replaceable transparent ink tanks, and each is separate from the print head. The monitoring system alerts you when they are low, so you replace only one colour at a time.

Original print *S600* *Conventional*

Image simulation

S600
colour Bubble Jet™ printer
Just $599[RRP]

Parallel and USB interfaces are built-in for Windows and Macintosh.[3]

Canon Customer Care. The one-year warranty is upgradeable to three years for a minimal charge, and is backed by Customer Care hot-line support. For more information call 1800 021 167.

Resolves speed vs. quality issues.
The S600 also features a special draft mode. Slightly slower than fast mode, it combines high speed, with ink conservation, while resolving the quality issue common to conventional draft modes. New head design and Precision Colour Distribution Technology improve colour consistency while producing high-density, high contrast prints and still achieving B&W speeds up to 12ppm.[1]

You can...

Canon

Price shown is recommended retail price including GST. Canon® is a registered trademark and Bubble Jet and MicroFine Droplet Technology are trademarks of Canon Inc. Microsoft® Windows® and Windows NT® are registered trademarks of Microsoft Corporation in the US and other countries. Mac® and Mac® OS are registered trademarks of Apple Computer Inc in the US and other countries. All other trademarks are the property of their respective owners. 1.Print speeds may vary with the content of the document and the processing speed of the host computer. 2. Based on in house tests using ISO criteria. 3.Printer driver support is provided for Windows® 95, Windows® 98, Windows® 2000, Windows® Me, Windows NT® 4.0 for the parallel port and pre-installed Windows® 98, Windows® 2000, Windows® Me and Mac® OS 8.1+ or 9.X using the USB port. Specifications are subject to change without notice. Canon Australia Pty Ltd ABN 66 005 002 951.
CS0445/5

tech.files

From page 26

while the 2.2GHz CPU performed approximately 15 per cent better than the original 2GHz.

We received a complete 2.2GHz system from Xenon Systems that we also ran through some benchmarks. The Xenon was optimally configured with a 64MB DDR GeForce3 Ti 500 graphics card, an 80GB ATA100 hard drive and 512MB of DDR system memory. The 2.2GHz CPU was housed on one of Intel's new D845BG motherboards. The SYSMark 2001 benchmark score of 219 points verified the scores provided by Intel for the 2.2GHz processor. More importantly, it is the highest benchmark score achieved by a single processor PC tested in our Test Centre. It surpassed the score of 211 returned by the dual-processor DDR-based AMD Athlon XP1900+ system of similar configuration, while absolutely smashing the closest score of any single processor machine appearing in this magazine. 3D performance benchmarking with 3DMark 2001 revealed that the new P4 is a graphics monster, also recording the highest-ever 3D benchmark scores of any machine tested. If performance remains consistent, then Intel has finally begun to deliver the Athlon-slayers it has been promising.

Working backwards

Another issue is whether the newer CPUs will work on older Intel Socket 478 motherboards. Intel's answer is yes — as long as you get a BIOS upgrade.

Keep in mind that, although compatible with older boards, these boards will only ever be supporting SDRAM or RDRAM. In order to take advantage of the benefits of DDR, you will need a new motherboard with an appropriate chipset. Intel has finally acceded to the demands of the market and released its latest chipsets with DDR support, plus three flavours of motherboard that support this memory. They are based on the 845 chipset and are the D845PT, D845BG and the D845BGSE. No pricing was available at the time of this review. ■

tech.news

From page 28

division. "This is basically a melding of the two," he said. "Several of the spaces we work in have applications that need both, but needed a lower price point."

For example, a portable MP3 player needs a DSP for the number-crunching involved in decoding the data into an audible format, as well as a microcontroller for other functions, such as sending commands for playing and pausing the audio from the buttons to the mechanical elements in the player, said Sam Khoury, strategic marketing manager for the DSP division.

"The [microcontroller] controls the events, and the DSP controls the accuracy," Khoury said. He indicated that because the chips come in a hybrid family, they are easier for both hardware and software designers to work with.

Motorola estimates it can sell the hybrid chip at about the price of standalone DSPs from some companies, saving money for both the device manufacturer and the end user.

The chips also take up less space in a device and use less power because they combine the DSP and microcontroller.

The six new chips run at 120 MIPS (million instructions per second) and feature between 8KBs and 48KBs of data memory. They are currently shipping in sample quantities to device manufacturers, and volume production is expected to begin by the second half of this year, Khoury said. ■

DESCRIBE YOUR SYSTEMS ADMINISTRATOR SKILLS IN JUST 4 LETTERS: MCSA

The new Microsoft Certified Systems Administrator (MCSA) certification recognises IT job skills that are in high demand. Businesses need professionals who can implement, manage and troubleshoot existing network and system environments based on Microsoft® Windows® 2000 platforms, including Windows .NET Server. Getting certified is the smartest way to showcase your expertise and advance your career.

MCSA training and certification exams are available now!

Call Drake Training on: 1300 362 262

Australia's most comprehensive range of technical, desktop and professional development training courses delivers proven skills that unlock the potential for increased productivity.

DRAKE TRAINING

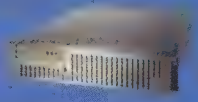
intel premier

Armaserv

Intel® Validated Servers

Are you ready for E-BUSINESS

Whether you are a small company buying your first server or upgrading your existing server to take on the needs of a growing business, Armaserv has the right solution for you. Configured to individual requirements from small workgroups to multiple CPU server forms with fully redundant features, performance, reliability and affordability make the Armaserv the ideal solution. Choosing the right server for your business can be difficult and the wrong decision can be costly. The Armaserv Series of pedestal tower or rack mount server models meet and exceed the requirements of a growing network with scalable and modular features to deliver the power and flexibility to your business needs.



The Rapier Series

A powerful small to medium business server designed to deliver affordable solutions for e-business applications and front end server workloads

Specifications ■ Single Intel® Pentium® III 1GHz processor ■ Intel® STL2 dual processor server board ■ 256 MB RAM supports up to 4GB ■ Intel® SC5000 Pedestal server chassis (optional RM) ■ 5 Ultra 160 Hot Swap SCA bays. (Expandable to 10) ■ Supports 1 x 3.5" bay, 3 x 5.25" bays, 2 x 1" internal bays ■ 2 x 64bit/4 x 32bit slot support ■ Integrated Ultra 160 and Ultra Wide SCSI ■ Includes 2 x 18GB Ultra 160 SCA SCSI HDD ■ Integrated LAN with W.O.L. support ■ Integrated graphics with 4MB memory ■ Intel® Server Control (ISC) ■ Single 300W power supply ■ 17.5"(H) x 8.6"(W) x 26"(D)

The Knight Series

A powerful dual processing high-density server to deliver large storage capacity and high reliability in a compact package

Specifications ■ Single Intel® Pentium® III 1GHz processor ■ Intel® STL2 dual processor server board ■ 256 MB RAM supports up to 4GB ■ Intel® SR2050 2U Rack server chassis ■ Supports 4 x 1" hot swap bays, 1 x 3.5" bay, 1 x 1 slimline bay (CD) ■ 2 x 64bit/ 4 x 32bit slot support ■ Integrated Ultra 160 and Ultra Wide SCSI ■ Includes 1 x 18GB Ultra 160 SCA SCSI HDD ■ Integrated LAN with W.O.L. support ■ Integrated graphics with 4MB memory ■ Intel® Server Control (ISC) ■ Single 275W power supply ■ 3.5"(H) x 18.9"(W) x 24"(D)

Westan

DISTRIBUTED BY WESTAN

VIC	P (03) 9543 7733	F (03) 9544 0602
NSW	P (02) 9648 2060	F (02) 9648 2064
QLD	P (07) 3840 3522	F (07) 3840 5544
SA	P (08) 8351 6600	F (08) 8351 6622
WA	P (08) 9445 9688	F (08) 9445 9699

Email sales@westan.com.au Website www.westan.com.au

intel inside pentium®III

intel inside pentium® xeon™

first looks

HARDWARE

36 Canon MultiPass L60; Apple iPod

38 NEC MultiSync LCD1830; 3Com 10Mbps LAN CF+ Card

40 Sony DCRIP7E

SOFTWARE

30 Mandrake Linux Gaming Edition

32 Quark XPress 5.0 beta

34 EasyOffice Premium 3 and StarOffice 6 beta

40 Pinnacle Studio Version 7

Mandrake Linux Gaming Edition

OPERATING SYSTEM

in brief

Mandrake Linux Gaming Edition

★★★½☆

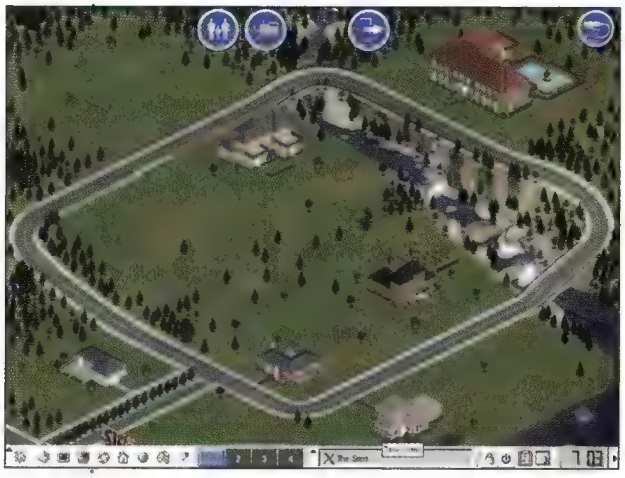
A Linux distribution that can run many games designed for Windows, including The Sims which is included in the box.

Price: $US69

URL: www.linux-mandrake.com

An often-requested feature of Linux has been the ability to run Windows games natively. Mandrake Linux has teamed up with TransGaming Technologies to make this viable.

Mandrake Linux Gaming Edition combines the popular Mandrake 8.1 Linux distribution with the WineX portability layer from TransGaming Technologies to offer support for many Windows games. WineX implements a native clone of DirectX under Linux, allowing Windows games to run without modification. A complete version of The Sims from Electronic Arts has been included in the box to demonstrate the abilities of this new Linux distribution.



Mandrake Linux Gaming Edition runs The Sims perfectly.

The distribution spans four CDs. The first two make up the Mandrake Linux 8.1 distribution, providing a complete Linux system; the third includes a number of non-free applications such as StarOffice from Sun; and the final CD is a complete copy of The Sims.

Mandrake has chosen to be a bit conservative by including The Sims with the distribution. Although a very popular game, The Sims is now rather old. Other games advertised as supported by the version of WineX included are also fairly old, such as Starcraft, Baldur's Gate and Half-Life: Counterstrike. The age of these games may serve as a warning to users that Mandrake Linux Gaming Edition possibly may not support many of the newer games on the market. To Mandrake and TransGaming's credit, the games advertised worked flawlessly; however, many gamers will not be satisfied until the latest games are supported out of the box.

Included with Mandrake Linux Gaming Edition is a three-month subscription to TransGaming's services, through which users can receive updates and vote for games for which they would like support added in the future. The voting system helps to ease the frustration sure to be encountered by gamers attempting to run newer, unsupported games.

Mandrake Linux Gaming Edition is priced higher than most Linux distributions, although the inclusion of The Sims makes up for most of the price difference. The version of Mandrake Linux included is identical to the free download version available on the Internet. This release marks the first significant step made by a Linux distribution to provide binary compatibility with Windows software and, although not all games will work perfectly, the feat of running any Windows games is an impressive one. ■

– Alistair Cousins

Review ratings

★★★★★

Quick summaries let you take in each review at a glance. They give a snapshot of the product, who it is aimed at, and how well it performed. The product's rating is represented by stars; the more stars out of five, the better the product performed in test situations.

Note: beta versions of software will not be given a star rating.

DVpics

The DVpics Digital Video Editing Kit enables you to edit DV camcorder recordings on your PC or MAC. It includes the 3-port Adaptec FireConnect™ 4300 FireWire®/1394 card, cable and MGI VideoWave 4. Editing your movies has never been faster.

FireConnect for Notebooks

Take high performance FireWire connectivity wherever you go with this 3-port Cardbus. Kit also includes a Digital Video Software for you to quickly create and share your movies.

DVpics™ Plus

A complete kit for making great movies on DVD, it includes the MGI VideoWave® editing software and the Sonic MyDVD® DVD creation software. Transform and burn your videoclips onto CDs or DVDs. Simply a great way to lock-in your special moments.

FireConnect 4300

A 3-port OHCI-compliant FireWire® /1394 host adapter for PC and Macintosh® systems that provides plug-and-play connectivity for FireWire devices such as hard drives, CD-RWs, scanners and camcorders. Also in the kit is the MGI VideoWave 4 SE software for Windows® systems.

pc world best buys

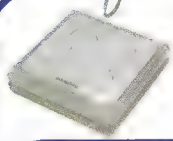
The Widest Range of High Speed Desktop Solutions from Adaptec

HI-SPEED CERTIFIED USB

FireWire

Xhub4+

Easy-access USB ports, stackable expandability, integrated cable management - even a place to put your favourite photo! This 4-port USB2.0 hub cleans up your desk and gives you access to the hottest new USB devices! It is also USB1.1 backward compatible.



Xhub4

With 4 easy access ports that support the high speeds of USB2.0 as well as USB1.1, it gives you connectivity to the latest accessories without sacrificing compatibility with your older USB devices. It looks great on your desk too!

USB2connect 3100LP

This high speed 4-port USB2.0 card allows both your MAC or PC to work with both USB1.1 and USB2.0 devices. USB2.0 is the fastest USB standard ever supporting data speeds up to 480Mbps... 40 times faster than USB1.1.

USB2connect 5100

Ultra-flexible 6-port USB2.0 card gets you connected with today's most popular peripherals and tomorrow's exciting new ones. USB2connect is easy to use. Simply install the card and its drivers and you are ready to go. It's for both USB1.1 and USB2.0 devices too.

USB2connect for Notebooks

This high-speed 2-port USB2.0 cardbus Adapter allows USB connectivity wherever you go. Without the need for an additional power brick to add weight to your bags, it gives you "performance on the run".

XHub7+

With 7 ports that supports USB1.1 and USB2.0 devices. This is the all-in-one solution for USB connectivity. XHub7+ can be stacked with any other Xhub including the XHub4 Series. Of course it includes a stand that helps manages your cables.

DuoConnect

The ultimate in total connectivity. With both FireWire and USB2.0 connections on a single card, you can save both money and a PCI slot. Plus you don't have to turn on your computer twice! Also included in the box is the Sonic MyDVD 3 software and the FireWire cable.

AUTHORISED DISTRIBUTORS

Digiland Pty Ltd
Tel: 1300 652 005

Lan 1 Pty Ltd
Tel: 02 9319 6411

Synnex Australia Pty Ltd
Tel: 1300 880 038

Tech Pacific Australia Pty Ltd
Tel: 1300 651 124

www.adaptec.com.au

adaptec

Copyright © 2001 Adaptec, Inc. All rights reserved. The Adaptec logo is a trademark of Adaptec, Inc. Certain other product names, brand names and company names may be trademarks or designations of their respective owners.

Quark XPress 5.0 beta

DESKTOP PUBLISHING SOFTWARE

If PageMaker started the DTP (desktop publishing) revolution back in the 1980s, it was Quark XPress that turned it mainstream for professionals. Quark has never been a company to churn out regular product upgrades just for the sake of it: the last major release came out five years ago. So when the company announced that its long-awaited upgrade would appear before the end of this year, everyone sat up and took notice. (The Australian availability date has not yet been released.) We tested the public beta of Quark XPress 5.0, International Passport edition.

The big news is that Quark XPress 5.0 presents two working modes: print and Web. Designing pages in print mode is much the same as before, but the Web mode is completely new. There's also a new Web toolbar, which provides image map markup tools, along with a set of Internet form creation tools for lists, radio buttons, checkboxes, text fields and so on.

These Web pages can be sent to your preferred Web browsers for an instant preview and, when you export the final job to HTML, XPress can also optionally convert the graphics to GIF, JPEG or PNG. It's hardly a full Web design package, especially since it lacks any support for integrating Flash, Java and streaming media, but it's one that existing XPress users will find easy.

As predicted, XPress 5.0 comes with XML (extensible markup language) tools for next-generation electronic publishing. Don't get overexcited, though, because these just turn out to be a bundled copy of Quark's existing commercial XML plug-in, currently sold as Avenue.quark. Also be warned that it's not a solution for the faint-hearted: be prepared for a lot of coding.

The other big news is that XPress now comes with a table tool. At last, you can draw a box and turn it into a tabular layout within the program, adjusting columns and rows spreadsheet-style by dragging on the cell borders. Our only concern is that the tables were rather glitchy in the beta software we tested, and it wasn't clear how to disable rule markings between cells without leaving white gaps.

Beyond the new Web mode and tables, most of the enhancements in XPress are small improvements — for example, the indexing and list functions are more flexible. You can apply stylesheet changes at any point and accommodate 'reversed' index phrases (so that people's names can be listed in the index by surname before first name). Some long-awaited features have made a belated appearance, too, such as the Layers palette and a 'Fit Box to Picture' command.

Judging from this beta, some XPress users are going to be disappointed with the features that have not been upgraded. The confusing multi-window Print dialogue boxes are still there, no new vector tools have been added and the ancient two-colour gradient blends haven't been touched.

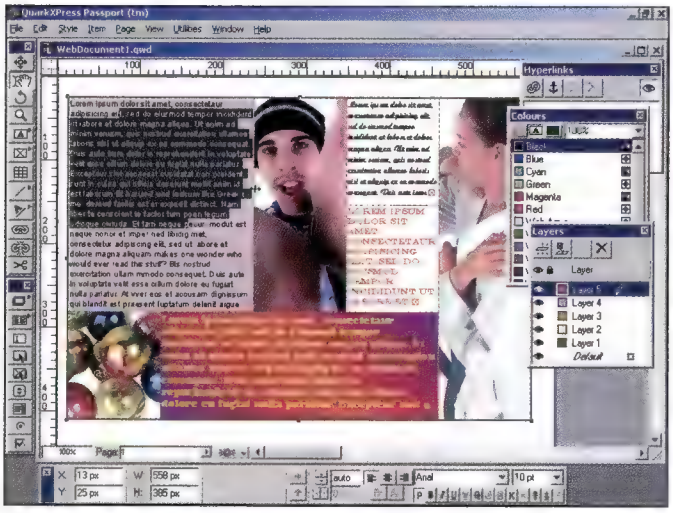
The PDF Export filter now lets you prepare bookmarks and hyperlinks, but you still need your own copy of Acrobat Distiller to use it. In other words, while existing XPress users should upgrade as soon as their output bureaus give the nod, don't expect to be showered with new features. That said, the integrated table tool alone is going to be worth the expense for many people. ■

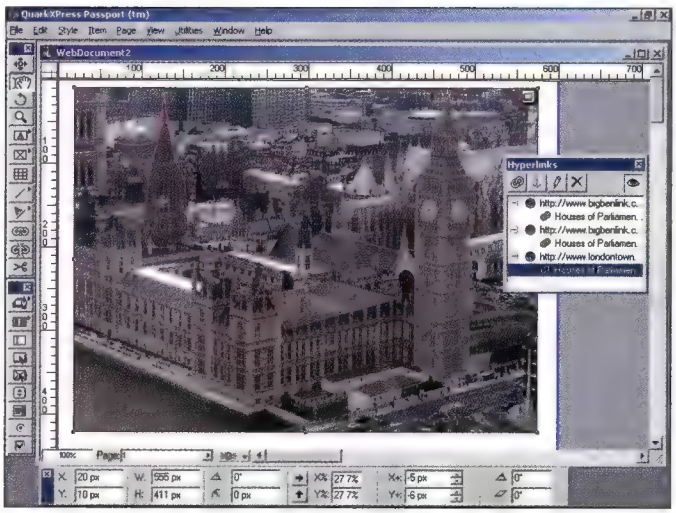
– *Alistair Dabbs*

Quark XPress 5.0 beta — **In brief**

Contrary to expectations, Quark XPress 5.0 is not vastly different from 4.1. In terms of retraining costs, this is definitely a good thing. On the other hand, apart from a few enhancements plus the new table tool, there's not a great deal to get excited about.

Distributor: Modulo Systems
Price: TBA
Phone: (02) 9699 2766
URL: www.modulosystems.com.au





The new Web toolbar offers tools tailored for online documents, and the Layers palette makes a welcome, if tardy, appearance.

One strike and your PC's out

Protect your PC and data with APC's NEW desktop power protection solutions

Protect your workstation against 4 daily power problems

It's a fact. A study by IBM proved that your workstation is subject to 128 power disturbances per month, that's roughly 4 per day! Power problems are also the largest, single cause of data loss, accounting for 45.3% of all problems. The best way to protect your valuable PC, data and peripherals from damaging surges, sags and blackouts is with the new APC Back-UPS CS or Back-UPS ES.

These new desktop solutions will continuously condition the power coming into your equipment, and instantly switch your PC and peripherals to emergency battery backup power during brief power outages without data loss or downtime.

APC recommended worldwide

Trust APC for affordable, reliable, high-performance power solutions. Recommended worldwide by leading IT vendors such as Cisco, Dell, HP, IBM, Sun and Microsoft, APC has received more awards for reliability and innovation than all the other UPS manufacturers combined. When you choose APC, you choose a lineage of Legendary Reliability™.

- The first UPS with USB and serial connectivity to ensure compatibility with all your equipment.
- Telephone, fax, modem and DSL line surge protection protects you PC equipment while online.
- FREE auto shutdown software for Windows and Mac OS users: saves files in the event of extended power disturbances.
- Enough outlets to protect your PC and peripherals. BK ES: 3 'battery and surge' outlets and 2 surge outlets. BK CS: 3 'battery and surge' outlets and 1 surge outlet.
- Standard Australian general purpose outlets for ease of plugging equipment into the unit.
- Intelligent battery management and auto self tests maximise battery reliability and notifies when battery needs to be replaced.

Data Centre Power Protection | *Network Power Protection* | *Desktop Power Protection* | *UPS Management Accessories* | *APC Global Services*

Order your FREE Desktop power protection brochure and WIN one of three binoculars by registering at : http://promo.apcc.com code - 49214k

APC Australia: Level 27 Northpoint, 100 Miller Street, North Sydney, NSW 2060
E-mail: anzinfo@apcc.com • Tel: (02) 9955 9366 • Fax: (02) 9955 2844
©2001 American Power Conversion. All Trademarks are the property of their owners. BK4B1EF-AU

APC
Legendary Reliability™

www.apc.com/au

EasyOffice Premium 3 and StarOffice 6 beta

OFFICE SUITES

Microsoft Office is the big gun of office suites, but its high price (Office XP Professional, purchased new, costs $1288) and its aggressive copy controls may encourage consumers to seek alternatives.

I looked at two low-priced suites trying to nose into the office suite tent: Sun Microsystems' StarOffice 6 (currently free as a beta download; its previous shipping version cost about $US40) and a shipping version of EasyOffice Premium 3, $US40 from E-Press.

With a full complement of well-integrated applications, each offering a standard Windows interface and almost all the features of Microsoft Office, StarOffice 6 has the look of a replacement package. The word processor falls short of matching Microsoft Word's feature list by only a grammar checker and macro recorder; its tools include as-you-type spell-checking, built-in charting, styles, a nice set of templates, HTML manipulators, and completely customisable toolbars and menus.

StarOffice's spreadsheet application is similarly well endowed, with a DataPilot feature to help create useful Excel Pivot Table-like views. (Pivot Tables select parts of a worksheet and then move the parts around for different views.) Based on a wizard-like system, the presentation manager offers a full set of special effects, and can automatically create a presentation from a word processing document. All applications can default to save in standard Microsoft Office 97/2000/XP file formats.

On the downside, the lack of macro-recording tools limits users' ability to customise, and the software's dialogue boxes and help topics are thick with technical jargon. Third-party training materials and support are minimal. StarOffice is best suited for technically oriented firms that use a mix of Windows, Linux and Solaris operating systems (it's available for all three).

EasyOffice Premium 3 has a lot less going for it as a Microsoft Office alternative. Although it offers voice recognition and speech synthesis tools, a bookkeeping application, and contact management — as well as word processing, spreadsheet, and presentation programs — it stacks up more as a competitor for the less powerful Microsoft Works.

EasyOffice can open and save files in Microsoft Office formats, but its main applications lack integration, and its feature sets are limited. For example, charts are available only in the spreadsheet and can't be pasted into a word processing document. And the interfaces of the various applications aren't standardised. Macro capabilities and toolbar and menu customisation are missing.

Corel's WordPerfect Office 2002 ($1299 for the Professional Edition) remains the best Microsoft alternative. However, some users — particularly technically oriented SOHO businesses — might want to take a look at StarOffice 6, in view of its affordability. ■

– George Campbell

in brief

E-Press EasyOffice Premium 3

★★☆☆☆

A limited feature set, lack of integration, and a quirky interface disqualify it from the list of fully-fledged office suites.

Price: $US40

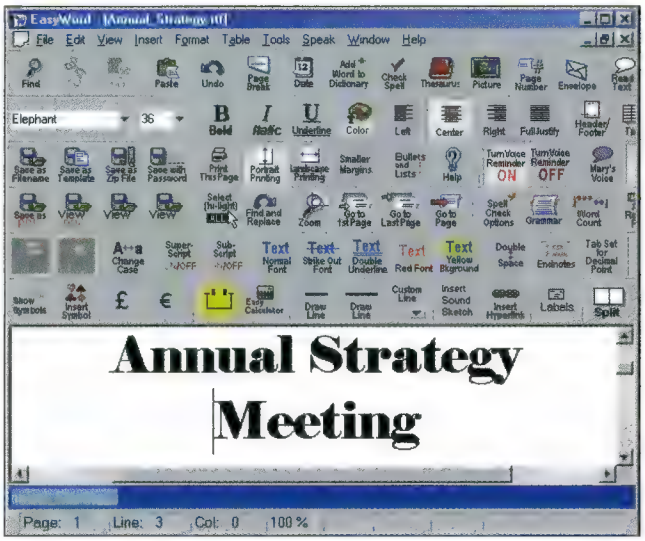
URL: www.e-press.com

Sun Microsystems StarOffice 6 beta

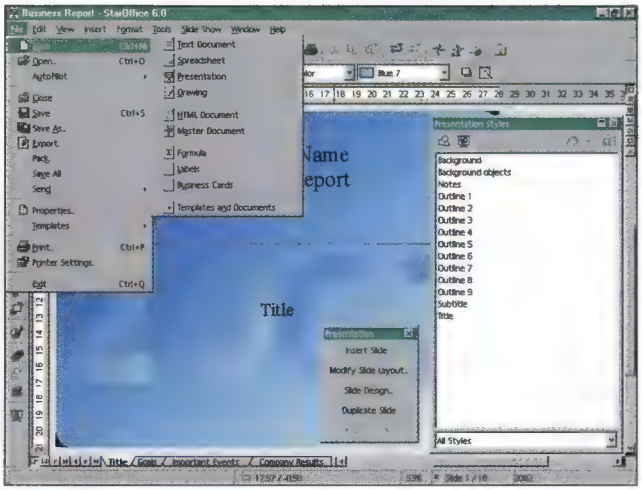
This suite is fully-featured, but has a fairly challenging learning curve and limited third-party training and support.

Price: Free in beta version

URL: www.sun.com/software/star/staroffice



Busy, busy: Whenever you right-click in EasyOffice Premium 3's word processing program, an interface packed with oversize icons appears.



An interesting feature of StarOffice is the ability to create a new document — word, HTML, spreadsheet, etc. — from any of the applications.

rome®

On the road,
in the car,
in your pocket,
in your tape deck!

The only MP3 player
with expandable memory
that fits inside your tape deck
(car, home, or portable)

And wait till you hear it...

Rome Technology Pty Ltd
Phone: (02) 9939 8599
www.rome.com.au
Freecall **1800 99 rome**

Canon MultiPass L60

MULTIFUNCTION DEVICE

MFDs (multifunction devices) should be an ideal solution for reducing desktop clutter, combining scanning and printing into one device. However, their reputation for poor quality and performance has so far prevented them from becoming essential PC peripherals.

Canon's latest stab at an all-in-one combines a scanner, mono laser printer, photocopier and fax into a unit measuring just 365x365x242mm.

The charge levelled at MFDs is that they are mediocre at all tasks. The MultiPass L60 managed to output 3ppm (pages per minute) mono — half the manufacturer's quoted speed of 6ppm. When you consider that many mono laser printers can manage 8ppm and faster, the L60 begins to look lethargic. Print quality wasn't bad, though it looked faint and grainy compared with its single-function rivals. The L60's output speed for photocopying was 3ppm, producing relatively faithful copies. Indeed, we found having this functionality in a small desktop package to be one of its major advantages.

As a scanner, the MultiPass reproduces monochrome images at 600x600dpi (dots per inch). Scan quality was satisfactory but lacked detail, and with excellent 600x1200dpi colour scanners costing $250 or less, this function also looks redundant.

In its favour, running costs are cheap compared with most mono laser printers. The L60's price tag of $1099 may be steep, but it's more acceptable when you consider the range of functions it combines. ■

– Paul Rincon

Canon MultiPass L60 — **in brief**

★★★☆☆

Keep in mind that should the L60 break down, you'll be left high and dry without the use of any of its functions.

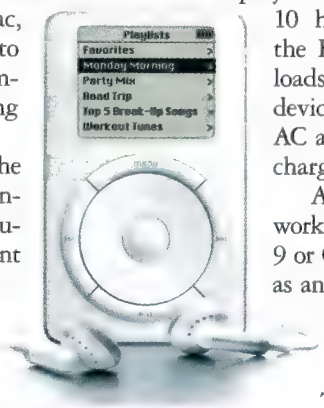
Price: $1099
Phone: (02) 9805 2570
URL: www.canon.com.au

Apple iPod

PERSONAL MP3 PLAYER

The stylish stainless steel and white Apple iPod houses a 5GB hard drive capable of storing about 1000 MP3s at 160Kbps. The iPod weighs 183g and is about the size of a deck of cards (102x62x20mm). Able to synchronise automatically with Apple's iTunes 2 jukebox software (discussed on page 117 in Here's How), the iPod stands out by using FireWire to connect to the Mac, making transfers up to 30 times faster than comparable devices using USB.

The iPod features the standard playback controls arranged in a circular fashion on the front of the device below the large (160x128 pixels) backlit LCD display that shows battery life, artist name, song title and album name. The iPod supports MP3s up to 320Kbps, variable bit rates, WAV and AIFF files and is also firmware upgradeable to accommodate future audio formats. The built-in 32MB memory cache provides no fewer than 20 minutes of shock protection. Another bonus is that the device charges its lithium-polymer battery (which boasts 10 hours of life) courtesy of the FireWire port as it downloads songs — something many device makers could adopt. An AC adapter is also provided for charging.



At present, the iPod only works with iTunes on Mac OS 9 or OS X, which could be seen as an attempt by Apple to sway potential computer buyers into walking down the Apple path, iPod in hand. That said, Steve Jobs has coyly mentioned that Windows support for the iPod may be forthcoming, though don't expect iTunes for Windows any time soon. At the time of writing, Mediafour (**www.mediafour.com**), a company known best for its MacDrive software that lets Windows users read Mac disks, had released a preview of its Xplay software. When finished, Xplay should allow Windows users equipped with a FireWire port to manage an iPod's song library.

The use of FireWire is innovative, the device is sleek in appearance and size and is also very easy to use — but at $895, the iPod is priced a little higher than its fellow hard disk MP3 players. Apple has a potential winner on its hands, though. ■

– Danny Allen

Apple iPod — **in brief**

★★★★☆

Classy, compact MP3 player with 20 minute anti-skip protection, large backlit LCD and 5GB hard drive. The scroll wheel allows you to browse your music by playlist, artist or song.

Price: $895
Phone: 13 3622
URL: www.apple.com.au

THE BEST VALUE LEADER

Total desktop power protection for only **$159**

Power quality has been worse than ever. Problems such as blackouts, brownouts, surges and noise are occurring with increased frequency. The effects of power problems range from subtle keyboard lock-ups and minor system crashes to the dramatic - complete data loss or permanent hardware damage. Most of these problems can be avoided with the use of a quality UPS.

For only $159, Opti-UPS 500vs-II is the best power protection solution for any desktop PC. The 2 surge protected outlets protect your PC and monitor from unstable power surges, lightning, and spikes. 500vs-II provides up to 20 minutes of back-up time in the even of power failure. Built-in dataline protection prevents surges damage from telephone or networking line as well.

Award winning UPS shutdown software, Opti-SAFE+, is also included to provide advanced protection. You can manage UPS and monitor power events thru the software. And the software saves all of your data, shutdowns the operating system, and turns off your PC automatically in the event of power failure, even the PC is unattended.

500vs-II Feature Facts:

- 500VA/300W to provide up to 20 minutes of back-up time for PC and monitor
- 2 battery and surge protected outlets
- Telephone/Modem/Networking/ADSL line surge protection
- UPS shutdown software included to manage the power and your UPS
- Automatic/Schedule UPS and battery self-diagnostics to ensure every part in the UPS is working properly to protect your equipment
- Smart front panel LED's to indicate Power Status, On-battery, Low-battery, and Overload with audible alarms when On-battery, Low-battery, and Overload
- User replaceable battery to avoid high service charge in the future
- Short circuit protection
- 2 year warranty including parts, battery, and labor

OPTI UPS®
Optimized Power Protection

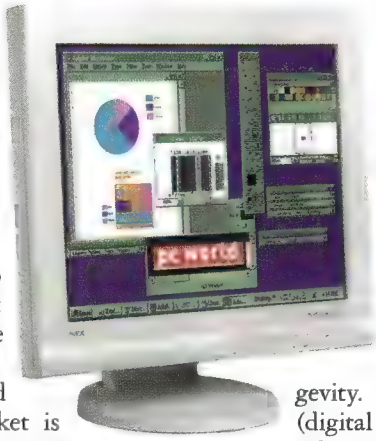
Download detail product specification by visiting http://www.optiups.com.au

OPTI Australia: B2/2A Westall Road, Clayton South, VIC 3169
e-mail: info@optiups.com.au
Tel : (03)9545-5322
Fax : (03)9545-5669

© 2001 Opti-UPS Corporation.All trademarks are the property of their owners.

NEC MultiSync LCD1830

FLAT-PANEL DISPLAY



Not only is the fall in 15in flat-panel prices great news for anyone looking to throw out their old CRT (cathode ray tube) monitor in favour of a slimline LCD (liquid crystal display) panel, it's also had a positive effect on the top end of the market.

NEC's track record in the flat-panel market is second to none, and with the LCD1830 it offers an 18.1in screen for just $2495. CRT monitors are governed by the size of the tube rather than the actual viewing area, so the LCD1830 boasts a picture equivalent to a 19.5in CRT. For its size, the MultiSync is relatively light and will maximise your desk space.

First impressions, though, aren't promising — the NEC's flimsy case construction does not bode well for longevity. However, the DVI (digital video interface) provides invaluable future-proofing, despite the PC industry's lukewarm reaction to the digital revolution. An extra RGB connector is provided, and the smart control panel gives access to this and a number of other industry-standard features.

The NEC's hardware specs are impressive and include a 160° viewing angle, 0.28mm pixel pitch and 300:1 contrast ratio. It's hard to fault the LCD1830 technically, and you'll also appreciate the excellent image quality. Text definition is needle-sharp, and the colour palette is a visual treat. The colours are customisable and the RGB mode is an asset for art and graphics work, where an industry-standard colour scheme is a must. ■

– *Robin Morris*

NEC MultiSync LCD1830 — **in brief**

★★★½☆

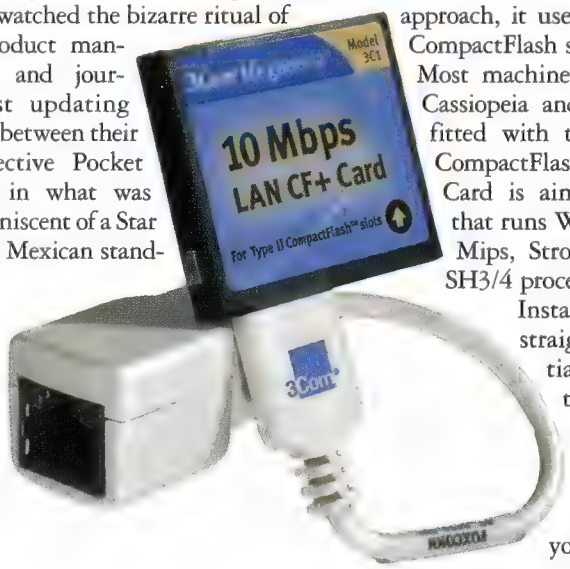
With image quality this good and a price tag this low, the flimsy case is a minor flaw in the LCD1830. Its price is competitive with 17in models, and the vibrant and versatile 18.1in screen would stand out at twice the price.

Price: $2495
Phone: 13 1632
URL: www.nec.com.au

3Com 10Mbps LAN CF+ Card

NETWORK CONNECTION CARD

Exchanging personal information used to be simple: you gave out your business card and got one in return. How things have changed. Recently, we were at a press event and watched the bizarre ritual of a product manager and journalist updating data between their respective Pocket PCs in what was reminiscent of a Star Trek Mexican standoff.



3Com's 10Mbps (megabits per second) card is designed for this new way of dealing with data, allowing you to connect a range of Pocket PCs to a 10Base-T network. In a novel approach, it uses a standard Type II CompactFlash socket for connection. Most machines, such as the Casio Cassiopeia and Compaq iPaq, are fitted with this type of slot for CompactFlash memory. The CF+ Card is aimed at any machine that runs Windows CE 2.1, with Mips, StrongArm and Hitachi SH3/4 processors.

Installation and setup are straightforward; you initially need to install the connection software from the PC that you normally use with your pocket device. After that, you can connect the CF+ to any compatible network using the standard Ethernet cable that comes with the kit.

A System Tray icon should appear at the bottom of your screen to confirm connection; you can double-click on this to change the settings. A green square on the icon represents a good connection, yellow means suspend mode and red shows a failed link. ■

– *Paul Warner*

3Com 10Mbps LAN CF+ Card — **in brief**

★★★★☆

Wireless and infrared connectivity are fine, but it's handy to be able to connect directly to your network. The 3Com card will give you broad compatibility with direct access to enterprise data, e-mail and the Internet, at low power consumption.

Price: $199
Phone: 1800 678 515
URL: www.3com.com.au

PIONEER
COMPUTERS AUST. & NZ

1.2GHz only $1,999

Pioneer VALUE Notebook
C1200 RRP $1999

Intel ®Celeron ® Processor 1.2GMhz
128 M SDRAM, (or 256M + $99)
10 GB Ultra DMA HD
24 X CD Rom, 1.44 FD
13.3" TFT, Up to 64M VGA
100/10M Lan+56K Modem
All in one+2xUSB
3D Audio Stereo System
MS Windows XP Home

Pioneer POWER Notebook
P1260 RRP $2999

Intel ®Pentium ® III Processor 1.26Ghz
128 M SDRAM, (or 256M + $99)
20 GB HD, 8X DVD
(Or CDRW+$290, or 8xDVD&CDRW+$480)
14.1" TFT LCD, Up to 64M VGA
100/10M Lan+56K Modem+2xUSB
1394 Firewire, All in one+TV out
3D Audio Stereo System
MS Windows XP Home

1.26GHz only $2,999

LCD PC only $2,999

Pioneer SOHO LCD PC
P1260 RRP $2999

Intel ®Pentium ® III Processor 1.26G Mhz
128 M PC133 SDRAM
20GB ULTRA IDE HD
24 X CD Rom, 1.44M FDD
3D Audio Stereo System
100/10M Lan+56K Modem
15" XGA LCD TFT, Up to 64M VGA
4 USB ports and PCMCIA slot
MS Windows XP Home
Keyboard and mouse

Pioneer POWER LCD PC
P1700 RRP $3999

Intel ®Pentium ® 4 Processor 1.7G Mhz
128 M RDRAM (or 256M $180)
40 GB HDD 7200 RPM IDE
8x DVD Rom, 1.44M FDD
3D Audio (TV Tuner optional)
100/10M Lan+56K Modem
17" LCD TFT, Up to 64M ATI Radeon VGA
4 USB ports and PCMCIA slot, Video in
MS Windows XP Home
Keyboard and mouse

1.7GHz only $3,999

1.7GHz only $1,590

Pioneer SOHO PC
P1700 RRP $1590

Intel ®Pentium ® 4 Processor 1.7G Mhz
Intel 845 Chipset Pentium 4 Motherboard
128 M PC133 SDRAM
20GB ULTRA IDE HD
Nvidia TNT 2 32M AGP
Integrated 3D Sound & 10/100M Lan
ATX Midi Tower Case
180W Speaker
52X CDROM, 1.44 FDD
Samtron 15" 56E Monito
MITSUBISHI K/B, Mouse, Win XP Home

Pioneer GAME PC
P1900 RRP $2490

Intel ®Pentium ® 4 Processor 1.9G Mhz
Intel 845 Chipset Pentium 4 Motherboard
256 M PC133 SDRAM
40 GB HDD 7200 RPM IDE
Nvidia GeFORCE 2 32M +TV OUT AGP
Creative SB LIVE digital Entaiment 5.1
ATX Midi Tower Case
Creative 5300 Desktop Theater
16X DVD, 1.44M FDD, 56K Int.Modem
HITACHI 17" CM615 Monitor
MS internet K/B, Mouse, Win XP Home

1.9GHz only $2,490

Pioneer Computers Australia

PioneerComputers.com.au
sales@pioneercomputers.com.au

Unit 2, 37 O'Riordan Street Alexandria NSW 2015

Phone: 02 9690 2888 **Fax: 02 9690 0333**
QLD: 07 3257 3879 **NZ: 649 534 3869**

- **ISO 9002 Quality Endorsed Company QEC11489**
- **Commonwealth Government Endorsed Supplier**
- **NSW State Government Contract Supplier:**
  ITS 2000 (PC) & (Notebook)
  ITS 2006 (Peripherals), ITS 2308 (Printer)
- **QLD State Government Contract Supplier:**
  GITC Q-1263, CITEC 724
- **NSW, QLD, VIC, SA Councils & Education Contract Supplier:**
  MAPS Group Contractor 0203/0701-IT Service
- **PC World - Best Buys**
- **Australian Personal Computer - Editors Choice**
- **PC Authority - 'Speed' Award**

intel inside pentium®!!!

intel inside pentium 4

Please call Pioneer for your Local Dealer

Intel,the Intel Inside Logo and Pentium are registered trademarks of Intel Corporation. ALL PRICES INC. GST, EXCL FREIGHT, ALL IMAGES ARE FOR ILLUSTRATIVE PURPOSES ONLY. ERRORS AND OMISSIONS EXCEPTED
Warranty: Notebook, LCD PC - 1 Year Parts, 3-Year Labour, SOHO,GAME PC - 2-Year Parts, 5-Year Labour

Pinnacle Studio Version 7

CONSUMER DV EDITING APPLICATION

Studio Version 7, the latest consumer video-editing package from Pinnacle, now supports virtually any OHCI-compatible 1394/FireWire card on the market. All you need is a PC capable of taking in digital video (DV) through a standard FireWire port.

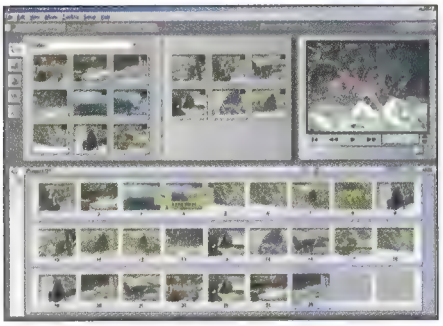
Studio DV keeps the demands on storage space to a minimum by transferring a reduced-resolution preview version of the DV footage to the hard drive. Called SmartCapture, it means that you can work with one hour of preview-quality video using only 150MB of disk space.

Once you've selected and trimmed the scenes to be used and added narration, titles, background music, transitions and special effects, SmartCapture transfers the original footage from the DV camcorder or DV VCR for the scenes needed to complete the movie at full DV quality.

When video files are captured, the clips appear as thumbnails in an Album. You can also locate album scenes from a timeline clip using the right mouse click command. A very handy Razorblade (split clip) button on the toolbar allows you to trim clips without having to access the more complex Trim window.

Many users will find the Variable speed playback feature a nifty effect. With a slow motion speed of 1/10x normal and a maximum fast speed of 10x normal play, users can creatively modify the action in their footage.

Studio 7 covers most video output options from DVD quality to Web streaming.



A simple tab-based navigation menu is effective in helping new users find their way around the program.

Studio 7 supports MPEG-1 and MPEG-2 files, with presets also available for S-VCD and Video for the Web. Studio 7 provides a nice combination of wizard-based hand holding for most editing tasks, as well as powerful features and effects to encourage new users to be creative. ■

– Denis Gallagher

Pinnacle Studio 7 — **in brief**

★★★★☆

This is an excellent introduction to the world of editing for DV camcorder owners. Its ease of use, features and performance compare favourably with any other consumer video-editing package around.

Price: $249; upgrade $205; DV package (software plus FireWire card) $299
Distributor: Pineapplehead
Phone: (03) 9852 7444
URL: www.pineapplehead.com.au; www.pinnaclesys.com

Sony DCRIP7E

DIGITAL VIDEO CAMCORDER

Measuring just 47x103x80mm and weighing 370g, Sony's DCRIP7E is a seriously small camcorder. It uses brand-new MicroMV tapes, 70 per cent smaller than conventional MiniDV but with the same cost and 60-minute capacity. MicroMV tapes use the more efficient MPEG-2 video compression system also used by DVD, but MicroMV uses a higher bit rate, with the potential to look better.

The IP7E features a fold-out 2.5in LCD, 10X optical zoom lens, analog AV inputs and outputs, and an iLink FireWire port. Sony supplies editing software for Windows but your PC will need FireWire ports, such as an Adaptec FireConnect 4300 card. Captured video occupies about 5.4GB an hour — half that of MiniDV.

The IP7E can also capture still images. The resolution is only 640x480, but this means 120 can be stored on the supplied 8MB Memory Stick. You can also use still images for special video effects.

The most surprising aspect is the built-in e-mail and Web software, which accesses the Internet via a Bluetooth connection. When we e-mailed photos using the IP7E and a Bluetooth mobile phone, each 100KB picture took two minutes to send. The browser may be basic and preparing e-mails is laborious, but the facilities really do work. ■

– Gordon Laing

Sony DCRIP7E — **in brief**

★★★★☆

It's hard not to be impressed by the IP7E — it's tiny, and has great quality, amazing features and connectivity. Only Sony would think of putting Bluetooth in a camcorder. The future of digital camcorders starts here.

Price: $4499
Phone: 1300 137 669
URL: www.sony.com.au

FASTER TURNAROUND

Digital LED colour printer

C7000 Series

- Full digital colour, A4 printing at **12ppm**
- Mono A4 printing at **20ppm**
- Powerful **400MHz** PowerPC processor with Oki's unique MEGA technology
- True **600 x 1200dpi** quality
- Oki **Single Pass Colour** digital LED technology

C9000 Series

- Full digital colour, A4 printing at **21ppm**
- Mono A4 printing at **26ppm**
- Full digital colour A3 printing at **11ppm**
- Over sized A3 printing
- Powerful **480MHz** PowerPC processor with Oki's unique MEGA technology
- True **1200 x 1200dpi** quality
- Oki **Single Pass Colour** digital LED technology

OKI

1800 800 140
www.oki.com.au

Selby On Strategy 3682

The Colour of Business

BRAD GRIMES

Stop logging in to multiple sites and start viewing your Web life in one place.

Forgot your site password? Just Yodlee

The most infuriating words in Web surfing are "Invalid user ID or password. Please try again". So you try again, and again. Was it the ID you remembered incorrectly, or was it the password? Finally the Web site locks you out because it thinks you're a security hazard to yourself.

In my early days online, I tried to use the same ID and password at every site I joined. That didn't always work (and probably wasn't wise). Some sites required numbers in the middle of passwords; other sites wouldn't accept the punctuation I used. Internet Explorer offered to remember my ID and passwords for me, but given IE's record of security holes, I declined the invitation.

These days I regularly botch Web sign-ins. It's no big deal at *The New York Times* online: I just sign up again with a new ID and password. Lately, though, I've entrusted more of my life to the Web. I pay bills there, track frequent-flier miles, and invest through multiple brokers. I can't afford to forget these passwords, yet they're the hardest to remember. The sheer number of passwords and log-ins we have nowadays can also make it hard to keep track of them.

I've tried several free downloads to manage passwords, such as Passwords Plus and Whisper 32, but many of these programs are little more than databases that hold your info and let you copy and paste it into log-in screens. Several online services are designed to remember your IDs and passwords, but with so many Web sites going out of business, I'm not sure these are a good long-term option.

Then I discovered Yodlee. In addition to remembering IDs and passwords, it aggregates data from other sites that you use. You can sign up for it free at **www.yodlee.com**. Some sites are also starting to rebrand the service, such as American Express, Quicken.com, and Yahoo Finance. In my case, I signed up for my online bank's version of Yodlee.

The sheer number of passwords and log-ins we have nowadays can also make it hard to keep track of them.

Using the bank's Yodlee-powered service, I enter the IDs and passwords for my important Web destinations once, and it logs in to those sites to retrieve up-to-date data like bank balances, frequent-flier miles, and bills due. Yodlee gets this info only with my permission.

It displays all the data in one place. If I want to go to one of those sites, I just click a button; Yodlee whisks me there and automatically logs me in. I have programmed every Web site I care about — from the one carrying my credit card information to the one handling my Web-based e-mail account — into my Yodlee service. And I can view my eBay auctions, Amazon shipments, online travel reservations, and *New York Times* headlines on tabbed pages through my bank's site. In other words, just about any site I visit and use the services of, I can store the necessary passwords — as long as Yodlee supports it. Most of the sites that are currently featured are US-centric — especially the finance sites — but there are some local ones like Qantas's frequent flyer program.

Is Yodlee secure? The people at Yodlee assured me that they use every known security measure — from data encryption to intrusion detection — to protect their servers. And if I leave my PC for 10 minutes, the service logs me out to prevent anyone rifling through my accounts. Major firms like America Online, J.P. Morgan Chase, and Fidelity Investments offer Yodlee to their users, which could be a good sign that the service will be around for a long time. After the recent disappearances of so many online services, this is helpful reassurance.

I've tried many ways to keep track of all my online passwords, and found that nothing is perfect. For my truly important online accounts, though, Yodlee is a terrific tool. ■

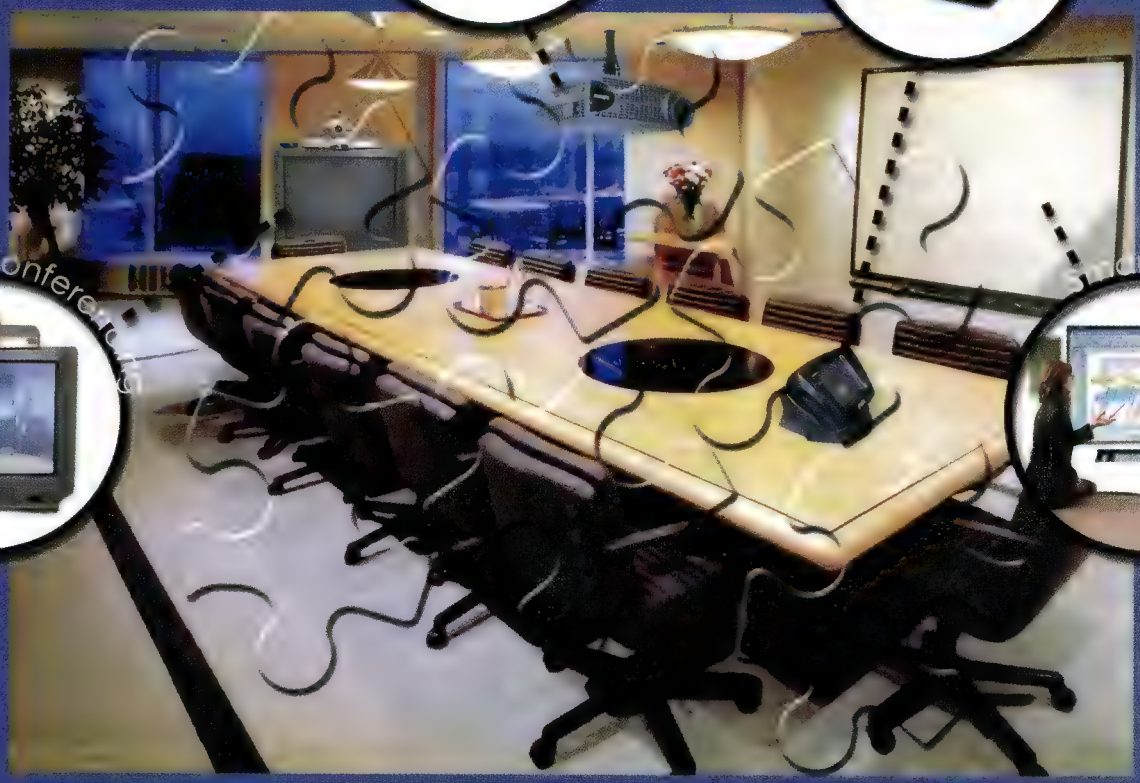
Brad Grimes can be contacted at: websavvy@pcworld.com

Need to upgrade your Boardroom, Conference Room or Training Facility but can't fit the pieces together?

ELECTROBOARD is your electronic presentation specialist to help you with:

- Consultancy, design, implementation & support
- Specialist advice
- Leading edge presentation and video conferencing solutions
- Custom installation
- Nation-wide service and support

Government Endorsed Supplier
Certified Quality Assurance



ELECTROBOARD
LEADERS IN MULTIMEDIA PRESENTATION TECHNOLOGY

1800 622 880 www.electroboard.com.au

NSW • VIC • QLD • WA • SA • TAS • ACT • NT

PlasmaSync SANYO InFocus PictureTel SMART Board AMX

NICHOLAS PETRELEY

I may be thinking of upgrading to XP for gameplay, but forget about using the operating system for real work.

Lowered XPectations

I've been looking into Windows XP, and I may purchase a copy. No, I haven't sold out. My integrity is unassailable unless the Microsoft PR people discover my one weakness and offer me a date with Shania Twain. I am considering Windows XP because I'm a sucker for Windows computer games, and I'm tired of Windows 98 SE crashing all the time. I'm most certainly not going to use it to do real work, however, and I strongly recommend that you don't, either.

Windows XP has been surrounded by controversy, but none of the most controversial issues have anything to do with my verdict. Yes, Passport deserves to be burned at the stake; I have no intention of signing up. Yes, Microsoft should be raked over the coals for threatening licence audits to win long-term upgrade deals. However, there's nothing morally wrong with requiring individuals to register Windows XP. Having to do so again after hardware changes is annoying — big deal.

I'm giving it a big raspberry for business use because almost everything about it is a sham. Worst of all, this sham is built on a foundation of needless complexity that exists only to make it difficult for developers to migrate applications from Windows to any other environment.

Take fast user switching, for example. This feature makes for a great demo. Here's Mummy working on a document. Sally decides she wants to play a game. Thanks to fast user switching, Mummy can take a break and Sally can log into her own account, complete with Hello Kitty desktop wallpaper, to play her game. All without Mummy having to close the word processor and log out first.

The only reason Microsoft calls this "fast user switching" instead of "multi-user operating system" is because Microsoft has been referring to Windows NT as a multi-user operating system since it first appeared on the drawing board. Given that perspective, it seems rather pathetic that it would be a novel experience to see two different users logged in at the same time.

Here's a news flash for Microsoft: I can log in as four different users on my Linux desktop machine. XP users can have custom desktop profiles? I can do better. Two of the Linux users are running the KDE desktop environment, one is running GNOME and another is running WindowMaker. I'm running several applications in each session, including the same word processor in three of them. I can switch from one session to another with a keystroke. Call me when XP can do that.

What worries me isn't that Windows XP won't catch up, but how it will work under the hood if it does. One reason UNIX juggles multiple users well is because its designers didn't have "Prevent developers from moving to other platforms" as their first priority. This led to sane practices, such as restricting an application's ability to write to any directory except the temp directory, the user's home directory and perhaps a device.

In sharp contrast, Windows XP doesn't just allow applications to write to system files, it expects them to. That's why legacy applications often misbehave when two different users run them on the same machine at the same time. If the legacy application is accustomed to writing data to the HKEY_LOCAL_MACHINE key in the system registry, the users will either experience data access errors or they will overwrite each other's data.

Microsoft's proposed solution is to get developers to rewrite their applications to use the HKEY_CURRENT_USER registry key. I want to know why applications should be able to write to any system registry files. Not only is it totally unnecessary for all of Windows to live or die by a few critical files structured as an incomprehensible hierarchical database, but it's also just plain irresponsible to expose any of these files to user applications. To do so turns every bug into an opportunity for system-wide mischief. ■

Nicholas Petreley can be contacted at: nicholas@petreley.com

BARRACUDA ATA IV

BARRACUDA ATA

Best-fit application for PC gaming systems

Perfect for NAS applications

Simply the Fastest and Quietest Desktop Drive

Copies an hour of MP3 music in less than 1 second

Streams 8 DVD-quality movies simultaneously

3D DEFENSE SYSTEM™

ULTRA ATA/100

7200 RPM

Seagate Barracuda® ATA IV. Seagate's latest Barracuda disc drive delivers 15 percent better performance than its previous generation, 8.9 msec seek time and capacities of up to 80 Gbytes in only 2 discs. With up to 2.0 bels acoustics possible through the patent-design SoftSonic™ Fluid Dynamic Bearing (FDB) motor, this superfast drive is the world's only virtually silent hard drive. What's more, the drive is highly reliable with a nonoperating shock specification of 350Gs, coupled with Seagate's exclusive 3D Defense System™.

Visit our Seagate dealers and ask for Barracuda ATA IV now!

Interface	Formatted Gbytes (Gbytes)	Performance Transfer rate/ internal formatted	Nonoperating Shock (Gs)	Acoustics (bels – sound power)
Ultra ATA 100	Up to 80	Up to 555 Mbits/sec	350	Up to2.0

Achieva Tech Australia Pty Ltd Tel: 61-2-9742 3288 Fax: 61-2-9742 3188
Ingram Micro Australia Pty Ltd Tel: 61-2-9741 2000 Fax: 61-2-9741 2003
Synnex Australia Pty Ltd Tel: 61-3-8542 8888 Fax: 61-3-8542 8800

© 2002 Seagate Technology, LLC. All rights reserved. Seagate, Seagate Technology, the Seagate logo and Barracuda are either registered trademarks or trademarks of Seagate Technology, LLC. Other product names are registered trademarks or trademarks of their owners. Seagate reserves the right to change, without notice, product offerings or specifications.

www.seagate.com

Seagate

Readers' forum

Help at hand, when you need it!

I hope addressing this to you is not an abuse of privilege. I took the opportunity of using HelpScreen.com.au and did receive advice, which led me to solving my computer problem. I would like to send my thanks but feel offering it through the "question" access would be clogging up the main purpose of HelpScreen. Is there a "thank you" screen proposed? If not, I suggest many users would like such a facility, and it would be good, I think, for this brilliant service. If there is a page I've missed, could it be made more obvious? Many (genuine) thanks.

– Thomas Lock

Excellent service

Just a quick note to thank you for an excellent service, HelpScreen.com.au. Your magazine isn't half-bad either! Keep up the good work.

– Alistair Carr

More than a magazine

I get eight computer magazines each month and yours is the only one to get the integration between Web service and magazine even remotely right. And you do much better than this. I look forward to your regular updates and consider them an integral part of my daily news service. If you want the ultimate "don't do this", try PC Authority's Web site on a 56Kbps modem. I even gave up collecting their "Bitz" as it was taking a full night to collect them. When free becomes too expensive, it is time for a radical overhaul.

Keep up the good work.

– Keith McKenzie

Microsoft responds to WPA worries

This month Paul Roworth, Windows Product Manager, Microsoft Australia responds to the issues raised by Wally Mayski's letter in Readers' Forum December 2001 page 52.

There seems to be some confusion about Product Activation technologies in Microsoft Products that I would like to take the opportunity to clear up. Firstly, Activation is designed to simply validate that you are using an original copy of the product and it has only been installed on one machine, as outlined in the End User Licence Agreement that the user agrees to as part of the installation. Software Piracy and casual copying is a problem that affects the whole PC industry, with Product Activation technologies one way to reduce this as well as ensuring that customers are receiving the high-quality product they expect.

Activation is not registration (which is a separate, and completely optional process), and can be done over the Internet with a few simple clicks or via the telephone. Microsoft absolutely respects the privacy of its customers and does not ask for any personally identifiable information to activate a product. Activation uses two components to create a unique Installation ID — the Product ID, which is a unique product key which ships with the product and is used during installation, and a Hardware hash, which is a non-unique representation of the PC. To ensure the end user's privacy, Microsoft uses a one-way mathematical algorithm to create the Hardware hash used by Product Activation to create the Installation ID. Once created, the hash information cannot be calculated back to its original values. Hardware information is processed through the algorithm in the software on the PC — not at Microsoft — to create the hash. The raw hardware information is not known or sent to Microsoft.

Product Activation is not unique to Australia, and is incorporated in all copies of Windows XP around the world. If you would like to find out more about Product Activation, detailed information can be found at **www.microsoft.com/piracy/basics/xp_activation.asp** on the Web.

– Paul Roworth, Windows Product Manager, Microsoft Australia

missive of the month

Congratulations Keith McKenzie! You are this month's winner of a year's subscription to PC World worth $66.

We are pleased to receive your letters, but please keep them to less than 300 words. We reserve the right to edit letters for publication.

Please send mail to:
PC World, PO Box 295,
St Leonards, NSW 2065
or e-mail **pcworld@idg.com.au**

Telstra addresses ADSL issues

This month Stuart Gray, Manager, Corporate Relations Telstra Retail responds to the issues raised by Chris Russell's letter in Readers' Forum January 2002 page 52.

In last month's Australian PC World, Mr Chris Russell made a number of claims about the availability of broadband services in suburban Adelaide.

Telstra contacted Mr Russell and investigated his situation. Mr Russell lives in an area that is not serviced by broadband cable but his nearest exchange is enabled to provide broadband access to the Internet via ADSL.

However, ADSL performance is distance-dependent and performance deteriorates markedly beyond 3.5km from the exchange. This fact has been widely communicated by Telstra.

Unfortunately, Mr Russell lives more than 4km from his nearest exchange.

Mr Russell is able to get broadband access from either one-way or two-way satellite connection. The service offered via satellite is similar to that offered on cable and ADSL, and Telstra provides the satellite services to ensure that all Australians do have access to broadband services.

The roll-out of ADSL has not been put on hold in Adelaide or anywhere else and Telstra is on target to complete the rollout of ADSL by mid-year 2002.

– Stuart Gray, Manager, Corporate Relations Telstra Retail

Simply COMPEX!

Choice Of Technology For All Your Networking Needs

NP15B - A$199
NP15BR - A$159

Netpassage 15B
Broadband Internet Router
with integrated 4-port 10/100Mbps Fast Ethernet Switch

Netpassage 15BR
Broadband Internet Router
with one10/100Mbps Fast Ethernet LAN port

A$359

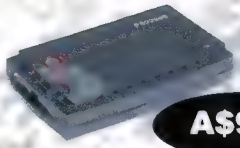
NetPassage 16
Parallel Broadband Internet Gateway with optional Wireless Capability
(WL11 is sold separately)

Compex NetPassage 16 Parallel Broadband Internet Gateway is the ultimate choice for high-speed Broadband users, allowing Internet sharing with multiple users via cable or ADSL connection. With sophisticated features such as Parallel Broadband, wireless Pseudo VLAN technology, time-based access control, analog dial-up fall back connection to an external V.90 56K modem and an optional slot for insertion of any wireless PCMCIA LAN card for a wireless gateway setup, you can relax with Compex NetPassage 16 Parallel Broadband Internet Gateway!

A$239

*irda*Net iRE201
Infrared Wireless Access Point

No more PDA to PC synchronization! With Compex *irda*Net iRE201 Infrared Wireless Access Point, you can now easily retrieve emails from your mail server or directly view a web page online via your portable computing devices. This infrared wireless access point supports 10/100Mbps Fast Ethernet connection to your Ethernet notebook or cable Internet, and a RS232 port for your 56K analog dial-up modem.



A$99

PS2208B
8-port 10/100Mbps Fast Ethernet Pocket Switch

PS2208B is an 8-port dual-speed Fast Ethernet Pocket Switch that fits neatly into any home/office network. With an average of 200Mbps collision-free frame forwarding rate per port, PS2208B is not only an ideal tool for sharing resources in the office/home network but also capable of intensive LAN gaming. Reviewed widely by independent sources - visit our website for more information.

DS2216 - A$359
DSR2216 - A$429

DynaStack DS2216
16-port 10/100Mbps Desktop Switch supporting Port Trunking & Priority Setting via PowerButtons.
DSR2216, 19" Rack Mount Fast Ethernet Switch, is also available.

Looking for a value-for-money network traffic solution for your home or office environment? Specially designed with PowerButtons to easily configure Port Trunking and Priority Queuing, DynaStack DS2216 unleashes power beyond standard switches. Providing ease of configuration @ a touch - DynaStack DS2216.

SRX2216 - A$499
SRX2224 - A$639

SRX2224 PowerButtons
24-port 10/100Mbps Fast Ethernet Switch with PowerButtons

The SRX2224 is a 24-port 10/100Mbps Fast Ethernet Switch with PowerButtons. These PowerButtons provide ease of configuration of your network for features such as Port Trunking and VLAN. SRX2224, ease of configuration @ a touch for your enterprise network.

A$259

WLU11A
11Mbps PCMCIA Wireless LAN Adapter

A$209

WL11
11Mbps PCMCIA Wireless LAN Card

Setting up a wireless network is child's play with Compex's *iWave*Port series - WLU11A, USB wireless LAN Adapter and WL11, 11Mbps wireless LAN Card. Bundled with Compex SoftBridge software access point, this allows you to create a software based bridge between your wireless network and your wired network. In addition, with a selectable 64-bit or 128-bit WEP encryption, resources can be shared without data privacy being compromised. Compex's wireless LAN solutions, your ultimate choice for performance, reliability and security.

A$19

RE100TX/WOL
10/100Mbps PCI Fast Ethernet Adapter

A flexible network adapter that provides automatic dual-speed switching for the 10Base-T and 100Base-TX standards.

A$39

LinkPort/UE202A
10/100Mbps USB Fast Ethernet Adapter

This finger-size, plug and play, USB Fast Ethernet Adapter allows you to connect your desktop or notebook computer to the Ethernet network at the speed of 10/100Mbps via the convenient USB interface.

PCDirekt Compex C-Kit 811WL TEST gut

FACTS Gut 9/2001 URTEIL

PREIS/LEISTUNG CHIP 8.2000 TESTSIEGER

PC AUTHORITY QUALITY
"Recommended NP15-A" PC Authority, Aug. 2001 Australia

*Prices indicated are Recommended Retail Price with GST.

Interested distributors and retailers, please write to channelpartner@compex.com.sg

www.compex.com.sg

Compex Systems Pte Ltd
#08-01 PM Industrial Building, 135 Joo Seng Road, Singapore 368363.
Tel: (65)286 2086 Fax: (65)280 9947

COMPEX®
networks@work

WORTH $1558!

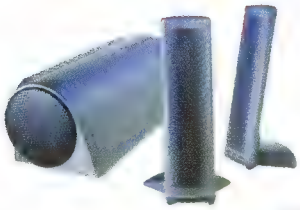
Win a TDK product pack!

One lucky PC World reader will win this fantastic TDK product pack valued at $1558

THE TDK PRODUCT PACK CONSISTS OF:

24x10x40x40 veloCD ReWriter

- 24x write, 10x rewrite, 40x read, 40x audio CD rip speeds
- features BURN-Proof technology
- failsafe write assurance — no more CD coasters
- software suite consists of Nero 5.5, InCD
- valued at **$699**



Tremor S-150W multimedia speakers

- radical new balanced, forced pipe sub bass system with slim profile satellites
- NXT Surface Sound technology
- valued at **$249**

Recordable CDs

- guaranteed archival lifespan of more than 200 years
- all writers, all writing speeds, 100 per cent compatible
- six packs of 50 CDs, total value of **$330**

Photo inkjet paper

- 264gsm, glossy, heavyweight, water resistant and instant drying
- for all popular inkjet printers
- four packs of 50 sheets, total value of **$280**

TDK pc world

Don't miss your chance to win this fantastic prize from TDK and PC World. Complete the coupon below now!

Win a TDK product pack competition.

Full name (Mr/Mrs/Ms/Miss): _____

Company: _____

Position: _____ Industry: _____

Postal address: _____

_____

Suburb: _____ State: _____ Postcode: _____

Phone: ( ) _____ Fax: ( ) _____

E-mail address: _____

How to Enter: Complete the coupon with your name and address details and you will be entered in the draw to win the TDK prize pack valued at $1558. **All entries must be on an original coupon. Mail to: TDK February 2002 Competition, PO Box 295, St Leonards, NSW, 2065**

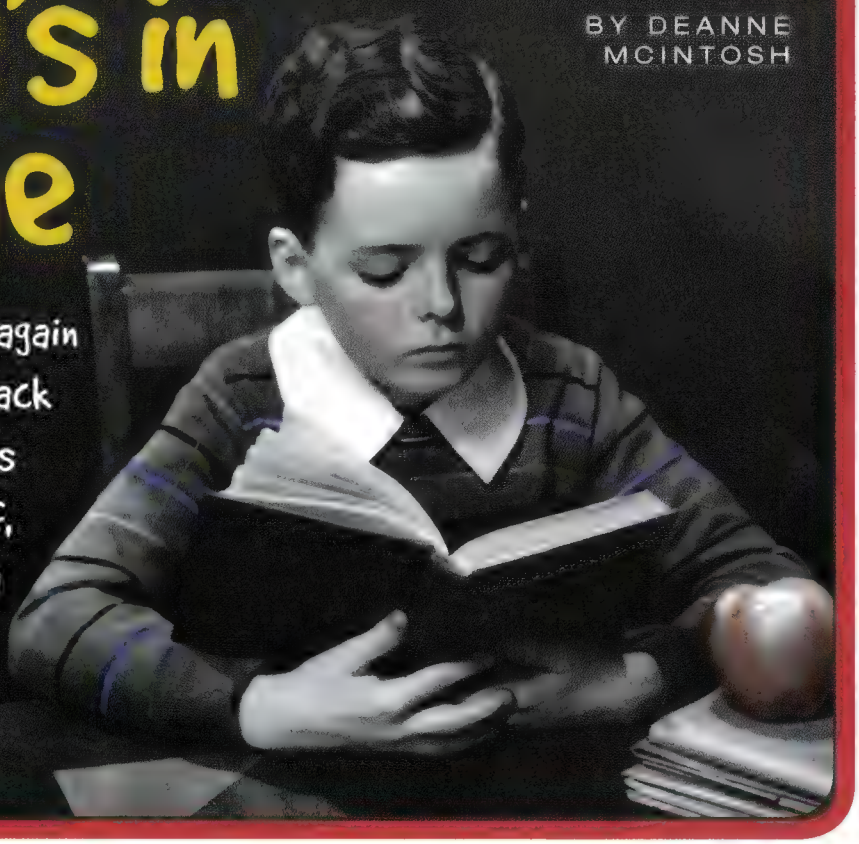
Terms & Conditions – "Win TDK prize pack"

1. Information on how to enter and prizes form part of these conditions of entry.
2. Entry is open to all residents of Australia, except employees and immediate families of the promoter, associated companies and agencies. The promoter is IDG Communications Pty Ltd, 88 Christie Street, St Leonards, NSW, 2065.
3. Entries must be completed on an original coupon from PC World February 2002 issue. Multiple entries are accepted providing that each entry is on an original coupon.
4. The competition commences at 9am on 16 January 2002, and closes at 5pm on 20 February 2002. The draw will take place at the offices of the promoter at 11am on 25 February 2002 with the winner being the first entry drawn on this date. The winner will be notified by mail and their names published in The Australian on 4 March 2002.
5. Prizes will be sent within 28 days from the draw date unless otherwise stated.
6. Prizes are subject to availability, and are not transferable.
7. The total prize value is $1558 and consists of a 24x veloCD ReWriter($699), Tremor S-150W multimedia speakers ($249), TDK recordable CD ($330), and photo inkjet paper ($280).
8. The judges' decision in relation to any aspect of the competition is final and binding on each person who enters. No correspondence will be entered into. No responsibility is accepted for late, lost or misdirected mail.
9. Entries remain the property of the promoter and cannot be returned. The entries may be entered into a database for future promotional, marketing and publicity purposes unless otherwise stated by the entrant.
10. The promoter shall not be liable for any loss or damage whatsoever suffered (including but not limited to direct or consequential loss) or personal injury suffered or sustained in connection with any other prizes. Any change in the value of the prize occurring between the publishing date and the date this prize is claimed is not the responsibility of the promoter.
11. NSW Permit No. TC01/12594; NT Permit No. 01/9107; ACT Permit No. TP01/4929; SA Licence No. T01/4913.

School's in – online

BY DEANNE MCINTOSH

It's that time of year again – time for kids to go back to school. While parents breathe a sigh of relief, school students have a brand new year to look forward to.



Although it seems like much of the education content on the Net now comes with a price tag — as sites struggle to make money — a great deal of Web material for students is still available for free. To help you prepare for the new school year we've gathered together a wealth of resources for primary and secondary students, as well as some sites that offer information that will appeal to students across the age spectrum.

Of course, the other issue for kids using the Net for help with schoolwork is how to find the right information. To address this issue, we've included some tips for advanced searching. However, the question still remains of how to work out what to trust on the Net. Just as there's great homework help online, there's also information of dubious quality — sites run by white supremacists denying the Holocaust ever happened is just one example of the danger in the Web free-for-all.

Many kids already know that they can't trust everything they see on the Net, just as they learn to be sceptical about what they read in newspapers or see on TV, but it still pays to warn them to test the info they find online before using it in their studies. Comparing suspect information with that found at trusted sites (such as those run by organisations like the CSIRO) and text books, as well as asking teachers for clarification, are good first steps.

Something else to keep in mind when encouraging your kids to use the Net is privacy. New regulations have just come into effect for Australian sites, but those operated in other countries may not offer the same protection. Kids (and many adults, too!) are often not immune to the call of free stuff and give away too much detail in the hope of winning something. Help your kids protect their privacy by explaining what information needs to be kept private and what you're happy for them to tell sites.

SITES FOR STUDENTS OF ALL AGES

EdNA

Education Network Australia's site (**www.edna.edu.au**) is a great first port of call on the Net for information on all types of training and education. The section on school education is easy to navigate, offering links to information for parents, teachers and students. Parents, for instance, can review the current issues and priorities of the education system, while kids

DEPARTMENTS ONLINE

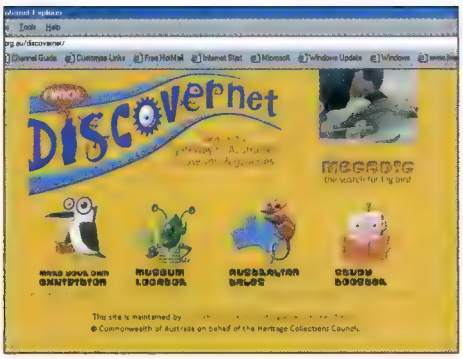
Visit the site of your state's department of education for information on classes and curriculum, new programs and for details like term dates.

New South Wales: www.schools.nsw.edu.au
Queensland: http://education.qld.gov.au
Victoria: www.deet.vic.gov.au/deet
Northern Territory: www.education.nt.gov.au
Western Australia: www.eddept.wa.edu.au
Tasmania: www.education.tas.gov.au
South Australia: www.dete.sa.gov.au
ACT: www.decs.act.gov.au
Commonwealth site: www.detya.gov.au

can access information on curricula and exchange and scholarship programs. Using the 'Key Learning Areas' tab you can find links to other useful sites on education topics that fit with school studies.

Discovernet

Billed as a gateway to Australian museums and galleries, Discovernet (**www.amol.org.au/discovernet**) has good resources for students. Check out the Study Booster section for links to the online outposts of museums around the country. Many are high-quality multimedia presentations — great for children who live outside the major cities and can't make regular visits to major museums. There's also a museum locater and a directory of museum Web sites.



Discovernet is a gateway to Australian museums.

StudentNet

StudentNet (**www.studentnet.edu.au**) was created by Australian educators to help parents, teachers and students find Web resources that relate to what is taught in this country. You have to register, but doing so gives you access to topic-based forums (for both primary and secondary classes), search facilities and chat rooms that let kids talk to other students.

National Geographic

Besides being a great site, National Geographic's online offering (**www.nationalgeographic.com**) comes with a privacy policy for children as well as adults. There's a kids' section, but everyone will find the general resources like maps, photo galleries and stories of adventures interesting.

Free pics for assignments

Add some spark to major projects with some pictures taken by professional photographers. FreeFoto.com (**www.freefoto.com**) has easily searchable pictures that are free for non-commercial use.

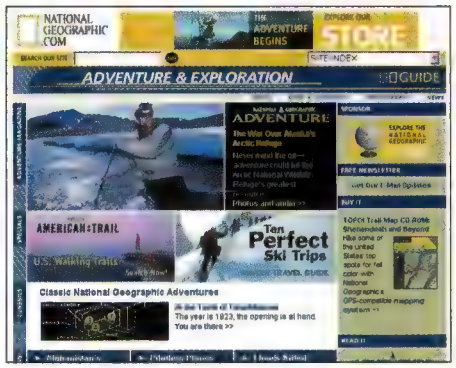
Kid-friendly search tools

The Web is a great source of information for students of all ages — but where do you find the right information? Engines like Google are a good place to start, but there are purpose-built tools for kids. Visit Kidsclick (**www.kidsclick.org/ksearch.html**) for an aggregation page of educational- and student-oriented search sites, including Ask Jeeves for Kids and several vetted resources. Also see "Search tips: the tricks of the search trade" on page 52 for more tips on searching.

PRIMARY SCHOOL

Games (they're educational, really!)

US site The Learning Planet (**www.learningplanet.com**) has resources for members, but non-members can play a selection of educational games. Games are grouped by age and topic. Funbrain



National Geographic's site has some of the content featured in the magazine, including some fabulous photography.

is another source for educational online games (**www.funbrain.com**).

How Stuff Works

Curiosity is a good thing — but what happens when you don't have all the answers to your kid's questions? A quick visit to How Stuff Works (**www.howstuffworks.com**) should help. There are loads of explanations for science and technology, as well as everyday stuff (how the caffeine in coffee affects us, for instance). There's also a section for current affairs that explains topical issues.

Been asked a question you can't answer? Howstuffworks.com will most likely have an explanation.

Webmonkey

Kids are never too young to start building their own Web pages — plus, it could be a great way to produce an A-grade assignment. Webmonkey for kids (**http://hotwired.lycos.com/Webmonkey/kids**) has lessons on designing and building a Web page, as well as step-by-step projects (including one on how to make an online report or assignment) once the basics have been mastered.

PRIVATE DATA NETWORK

with

FREE* VOICE GATEWAY

Location	Access/CIR	Voice Gateway	TOTAL ex GST P.A.
Sydney	DDS 128K/128K	12 Channels	$23,985 (all 3 locations)
Melbourne	DDS 128K/128K	12 Channels	
Brisbane	DDS 128K/128K	12 Channels	

OPTIONAL SITES

Location	Access/CIR	Voice Gateway	TOTAL ex GST P.A.
Perth	DDS 128K/128K	12 Channels	$11,153
Adelaide	DDS 128K/128K	12 Channels	$11,153
Auckland	DDS 128K/128K	N/A	$16,995

*Free usage of Voice Gateway/Data Router, with no capital outlay or rental. Voice Gateway/Data Router maintenance charge is free in the first year. Thereafter the maintenance charge is $1,995 P.A. Voice Gateway/Data Router installation charge is $[illegible].
Line installation charge is $1,750 for each location. Prices quoted are for metropolitan locations within 15km of TPG. Free Internet access provided. Internet downloads charged at 54.5c per MB. Minimum 12 month contract. Line speeds of up to and including 2Mbit are available. Contact TPG for other locations and/or bandwidth. Prices are exclusive GST.

Call (02) 9850 0916 or e-mail: tpgnetwork@tpg.com.au **TPG NETWORK**

BROADBAND 512K INTERNET

$26.95 monthly inc GST

Online Registration
www.tpg.com.au

- Broadband 512Kbps downloads
- "Always on" - Permanent Connection
- Unlimited number of network users
- No dial-up phone costs
- 5 FREE e-mail addresses
- 56K dial-up account as back-up

Sydney, Melbourne and Brisbane ADSL 512/128K. Download charged at 15.9c per MB inc GST. A once-off admin. fee of $99 applies. Fully configured ADSL modem, if purchased from TPG. FREE installation consultancy. Valid credit card required. Minimum 3 months contract. Paid quarterly in advance. Pre-payment for download charges is $25 for Credit Card payment. Subject to availability. Terms and Conditions apply. TPG ADSL covers most regional sites in NSW, QLD and VIC.

Call 1300 360 855 or e-mail: adsl@tpg.com.au Resellers Welcome **TPG INTERNET**

Unlimited Internet Hours

$9.99 (monthly)

- 56K Service
- FREE e-mail account
- FREE 10MB website space
- No administration fees
- 110 National Locations
- Available in major Metro area's

Incl. 100MB download per month*
Excess downloads charged at 18c per MB. Maximum charge on excess downloads $14.96 per month.
*conditions apply.

Call 1300 360 855 or e-mail: customer_service@tpg.com.au

TPG

Double Helix and Scientriffic

CSIRO runs a number of education sites for students of science: Double Helix is its science club, while Scientriffic caters for kids under eight. Visit the Double Helix site (**www.csiro.au/helix/index.html**) for info on experiments and news on upcoming events as well as back issues of the club's magazine, *The Helix*. There's also a store selling books, clothing and experiment kits.

HIGH SCHOOL

Study tips

This site (**www.unc.edu/depts/unc_caps/TenTraps.html**), maintained by an American university, has advice for preparing for exams and avoiding common pitfalls. For more tips on listening in class, taking notes and improving reading skills, visit **www.how-to-study.com**. This site is also US-based but it provides practical, straightforward advice for getting more out of school — primary, secondary and even tertiary students may find the ideas for building better study skills useful.

This Australian science site is well-designed and informative — especially for kids thinking of joining the industry.

To be or not to be...

At some point during high school, a kid is bound to come across Shakespeare. A single site is not going to inspire great love for the Bard in your kids, but this one (**http://library.thinkquest.org/19539**) created by students has some interesting sections. The puns and insults section is particularly good.

Search tips: the tricks of the search trade

Knowing how to quickly find the information they're after will help students get more out of their time on the Net — and avoid inappropriate content. Here are some tips for getting the most from your queries:

Read the instructions: most search sites tell you how to get the best results using their engine, so read before you search.

Be specific but concise: include sufficient search terms to get the links you want at the top of the list. Too many terms can push the page you want to the bottom, however. Start with a few terms, then add or replace them one at a time to get better results.

Go Boolean: the Boolean operators AND, OR and NOT let you include or exclude pages based on their content. For example, searching for "Sopwith AND Camel AND Snoopy" yields only pages about the *Peanuts* character's escapades as a World War I flying ace; *Sopwith AND Camel NOT Snoopy* blocks out most *Peanuts*-related pages — provided the engine recognises the NOT operator.

The Google advanced search page automatically includes the AND operator in its 'with all of the words' field, the NOT in the 'without the words' field, and the OR in the 'with any of the words' field.

Some search engines, such as AltaVista, Lycos and Fast, replace AND and NOT with + and -, respectively. To find only pages that discuss both the Dalai Lama and Bill Clinton, for example, you'd type "+Dalai +Clinton" (with a space between Dalai and the second +).

Add quotation marks: to find pages that mention W.C. Fields but not water closets or farmland, put quotation marks around your search term: "W.C. Fields". This instructs the engine to treat multiple words as a single term.

Use field specifiers: some search engines support field specifiers — keywords that tell the engine to perform specific kinds of searches. For example, typing "site:pcworld.com.au" limits the results to pages on PC World's site; "link:microsoft.com" will give you pages on sites that link to Microsoft's site. Using "url:weasel" will produce only sites that contain the word "weasel" in their Web addresses. To see which specifiers a particular engine supports, read the site's advanced search instructions.

– Scott Spanbauer

Science central

Goscience (**www.goscience.com.au**) does a great job of hiding some really useful content within a fun, well-designed site. Kids thinking of working in science might want to take a look at the careers section to see what kinds of jobs are available.

Australian Libraries Gateway

Behind the bland front page (**www.nla.gov.au/libraries/path.html**) of this site is a wealth of great information from libraries around the country. You can use this site to click through to picture, oral history and historical document and manuscript collections — all valuable resources for students of Australian history and social science, as well as other subjects. Don't miss the Picture Australia Collection (**www.picture australia.org**), which helpfully provides 'Paths' on subjects like Aboriginal art, bushrangers and the Olympics.

Art history resources on the Web

Maintained by a US art history professor, this site (**http://witcombe.sbc.edu/ARTHLinks.html**) has links to resources on just about every art genre there is. Easy navigation and an exhaustive listing of topics (countries, museums, traditions, and so on) make this a good example of what an online directory should be. The sheer number of links to other sites is staggering. ■

7.0

NetOp Remote Control

Ever wished you could check up on your company's servers when you're out of the office. Or have you ever wanted to take a second look at a file on your office PC when sitting at the airport? Well, now you can. NetOp Remote Control lets you access remote computers from virtually any operating system in the world – including Windows CE, Linux, ActiveX and Windows XP. This gives users unrivalled flexibility and the ability to access PCs via Internet Explorer or a PDA – perfect for when you're away from your office computer. What's more, NetOp Remote Control offers unsurpassed security and stability. Quite simply, there isn't a remote-control package better suited to the needs of IT professionals.

Our remote-control software supports more platforms than any other

Order your **FREE** full-function trial copy at www.netop.com

Centralized security
Centralized authentication using Windows NT SAM database, Microsoft Active Directory or the advanced NetOp Security Server.

Strong encryption
Encrypt with AES 256 bit keys and secure with 256 bits SHA HMACs. Key exchange uses 2048 bits Diffie-Hellman.

Extensive event logging
Log events to a local file, the NetOp Security Server, Windows Event log or to a SNMP enabled management console.

Hierarchical address book
Organize your remote PCs in a scalable, multi-level folder structure for easy access to any computer on your network.

IP connections made easy
The optional NetOp Name Server registers NetOp names and resolves them into IP addresses upon request.

Group control
Select multiple PCs and initiate NetOp commands like remote-control, file manager, chat, run program, log-off, shutdown, restart or wake-on-LAN.

Windows XP
Windows 2000
Terminal Server
Windows NT 4.0, 3.51
Windows ME, 98, 95
Windows CE 3.0, 2.11
ActiveX
Linux

Editor's choice
PC Professionell

Best in test
PC World

Best blend of features, security, performance
Computer Reseller News

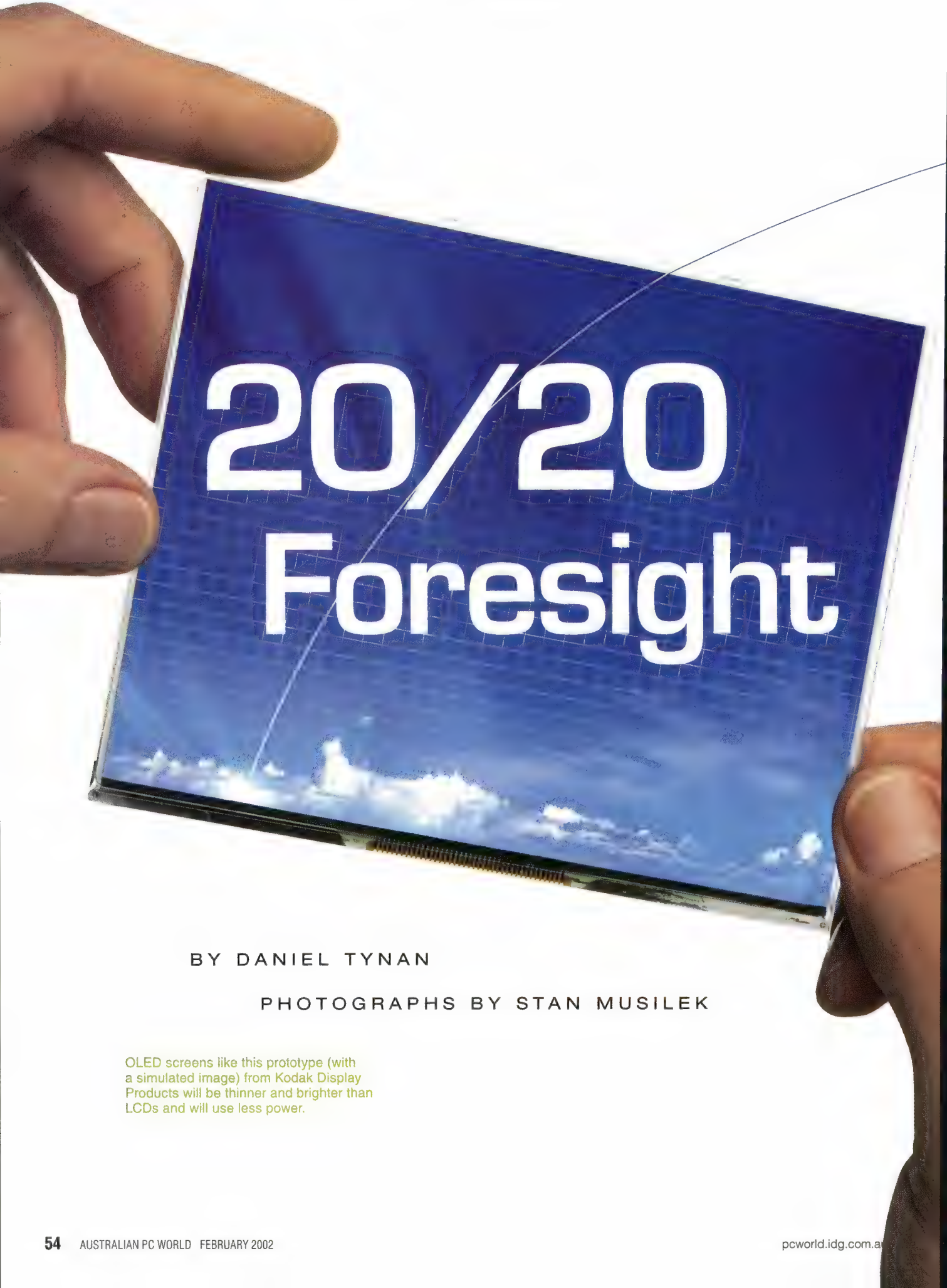
Editor's choice
PC Expert

Five stars out of five
Secure Computing

E-mail: info@netop.com
Homepage: www.netop.com

Moving expertise—not people™

NetOp®
Remote Control



20/20 Foresight

BY DANIEL TYNAN

PHOTOGRAPHS BY STAN MUSILEK

OLED screens like this prototype (with a simulated image) from Kodak Display Products will be thinner and brighter than LCDs and will use less power.

20 products, trends, and technologies that will change PCs in 2002 — and beyond.

Hot economies cool down and Net empires collapse, but technology continues to move at light speed. Digital tools are not only getting smaller, faster, and cheaper, they're also insinuating themselves into every corner of life. And these days, they're as likely to be found in your pocket as on your desk.

We've picked 20 trends and technologies that will have the greatest impact on personal computing for business and home use. We polled trend watchers, technologists, industry experts, and our own editors to uncover the products that will change how you work — and possibly even how you live.

Not surprisingly, many of these innovations help bring the power of the Internet to mobile devices. Others ensure that your PC's performance continues to scream along (leaving software even farther behind). And most of them will hit the scene within the next two years.

Of course, the road to digital Nirvana is littered with the remains of "can't-miss" products (Internet appliances, anyone?). So we've outlined bumps in the road that each technology will encounter. We've also scored each technology on a scale of 1 to 10: the higher the number, the greater the technology's impact on users.

You'll be amazed by what's ahead. The future of high-tech has never looked brighter.

"The biggest challenge will be applications and operating software. What will the software world come up with that will use all the processing power Intel is throwing at the market?" - Kevin Krewell, *Microprocessor Report*

400 gigs and a cloud of dust

AFC hard drives

What is it? Antiferromagnetically coupled media, a new way to coat hard drives. What's cool? By sprinkling disks with the element ruthenium — impishly termed "pixie dust" by IBM — drive manufacturers can pack more data onto each hard drive platter. Today, most drives fit about 20GB per square inch; AFC hard drives will ultimately fit five times as much — which means a 400GB drive will soon cost about the same as today's 80GB models. When's it coming? Pixie dust and other high-density storage technologies are already here, but drives won't hit 400GB before 2003. What's the catch? Like CPU speeds, today's hard drive capacities already exceed most users' needs. Impact meter: 8

It's a PIM, it's a phone, it's super-PDA

The 1GHz palmtop

What is it? Palmtop processors that run at speeds from 250MHz to 1GHz. What's cool? They'll need all that power to handle the high-speed mobile, Bluetooth, and other wireless technologies soon to be standard on handhelds. A business traveller might use the power to access a corporate database and then update information stored there using a mini-spreadsheet. Consumers might use the horsepower to download MP3s and to play short videos. Combine these high-speed chips with inexpensive mass storage, and pocket companions should become powerful enough to handle natural-language speech input — no more fussing with handwriting recognition. When's it coming? The first 250MHz to 400MHz handhelds are expected to appear in the first half of 2002. What's the catch? Don't expect masses of battery life. You might want to wear an oven mitt, too — these chips generate a lot of heat. Impact meter: 5

Scintillating screens

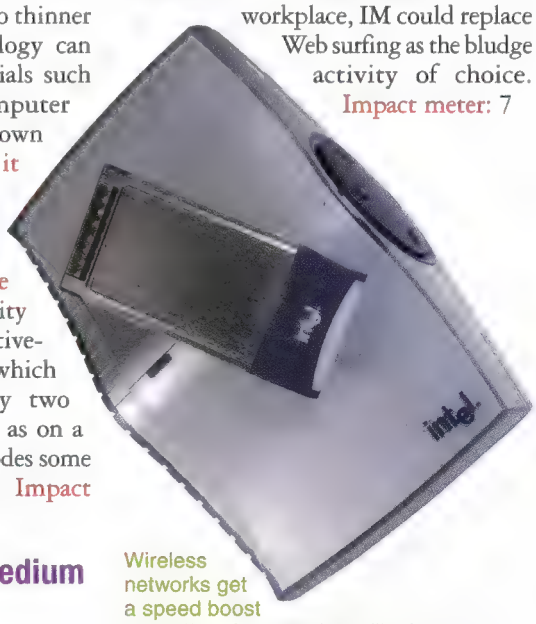
Organic Light Emitting Diodes

What is it? A replacement for LCD screen technology. What's cool? OLEDs rely on organic materials that emit light, so they require no backlighting. That makes them cheaper to produce and less power-hungry than LCDs. They're a natural choice for portable devices when battery life is a key concern. OLED screens are also thinner than LCDs, and the technology can be printed on flexible materials such as plastic. Imagine a computer screen that rolls up and down like a window shade. When's it coming? Two to three years for PDAs and mobile phones; five to 10 for notebooks and desktop displays. What's the catch? It's early. Colour fidelity can be a problem. Building active-matrix OLED displays — in which each pixel is controlled by two transistors, or twice as many as on a standard notebook LCD — erodes some cost and power advantages. Impact meter: 5

The message is the medium

Next-generation instant messaging

What is it? A whole lot more than text. What's cool? Instant messaging may have started as a toy for teenagers, but it's poised to become the mass-communication tool for the 21st century. Microsoft has made IM a key component of Windows XP: besides sending simple text messages, with Windows Messenger you can exchange files, conduct audio or video conferences, and collaborate on documents over the Net. The big advantage for business users? When you see that a colleague is online, you can set up a conference or work session instantly — no more telephone or e-mail tag. AOL is working with Sun and Lotus on standards that will allow their IM products to communicate with each other. Others are exploring ways that IM can help to drive e-commerce and deliver online music and games. When's it coming? Windows Messenger is here already, and its competitors are sure to respond soon. What's the catch? The AOL and Microsoft IM clients still can't communicate with each other. And in the workplace, IM could replace Web surfing as the bludge activity of choice. Impact meter: 7



Wireless networks get a speed boost to 54Mbps from products like Intel's Pro/Wireless 5000, one of the first 802.11a network hubs.

Tireless wireless

802.11 networks

What is it? A high-speed wireless network protocol. What's cool? In the office and at home, wireless networks will leave you free to roam while connected to the Internet at full speed. With an 802.11b home network, consumers can surf the Net, download files, and print documents from their notebook or handheld — no

empower your computing environment.

$4595* or $35.80 per week inc GST

DVmagic RT video editing system

- Intel® Pentium® 4 Processor 1.7GHz
- 512MB PC2100 DDR SDRAM exp to 2GB
- Canopus DV Raptor-RT for Real Time DV Editing
- 2 x 40GB ATA100 7200rpm IDE HDD
- GeForce2 MX400 64MB AGP graphics
- 17" Mitsubishi Diamond View Monitor
- Integrated AC97 Audio + 320W Speakers
- 1.44FDD + 16x DVDROM
- XENON 604 Mini Tower Case
- Adobe Premier 6 DV Editing Software
- Microsoft® Windows® XP Professional Edition

$3395* or $26.90 per week inc GST

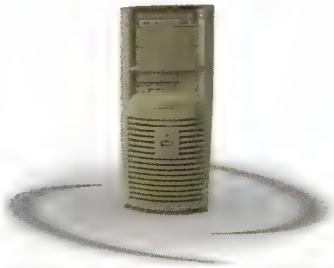
Nitro 600 Visual Workstation

- Intel® Pentium® 4 Processor 1.8GHz
- 512MB PC800 RDRAM exp to 2GB
- 40GB ATA/100 7200rpm IDE HDD
- GeForce2 Ti 64MB AGP graphics accelerator
- Integrated AC97 Audio + Yamaha 2-Speaker Set
- 1.44FDD + 52x CDROM + Intel 10/100 LAN
- XENON 320 Medium Tower Case
- Microsoft® Windows® XP Professional Edition
- 2 Year Limited Onsite Warranty

$2295* or $19.40 per week inc GST

Metro LP745 Corporate PC

- Intel® Pentium® 4 Processor 1.6GHz
- 256MB PC133 SDRAM exp to 3GB
- 20GB ATA/100 7200rpm IDE HDD
- Nvidia TNT2 M64 32MB AGP graphics
- 17" Mitsubishi Diamond View Monitor
- Integrated AC97 Audio + 120W Speakers
- 1.44FDD + 52x CDROM + Intel 10/100 LAN
- XENON 506 Slimline Desktop/Tower Case
- Microsoft® Windows® XP Professional Edition
- 2 Year Limited Onsite Warranty



$2695* or $21.50 per week inc GST

Platinum 500 Small Office Server

- Intel® Pentium® III Processor 1.13GHz
- Dual processor capable server
- 512MB PC133 SDRAM exp to 1.5GB
- Dual Channel IDE RAID controller
- 2 x 40GB ATA/100 7200rpm IDE HDD
- Integrated ATI Rage graphics
- 1.44FDD + 52x CDROM + 2x Intel 10/100 LAN
- XENON 820 Medium Tower Server Case
- 2 Year Limited Onsite Warranty

intel inside pentium 4

Financed by **Intel Financial Services** -
the simple and best way to obtain the best technology

Call 1300 888 030 or visit www.xenon.com.au

XENON®
innovative IT solutions

*All prices quoted include GST and are suggested retail prices only which exclude delivery. Reseller prices may vary. Product pictures for illustrative purposes only. Prices are subject to change without notice.

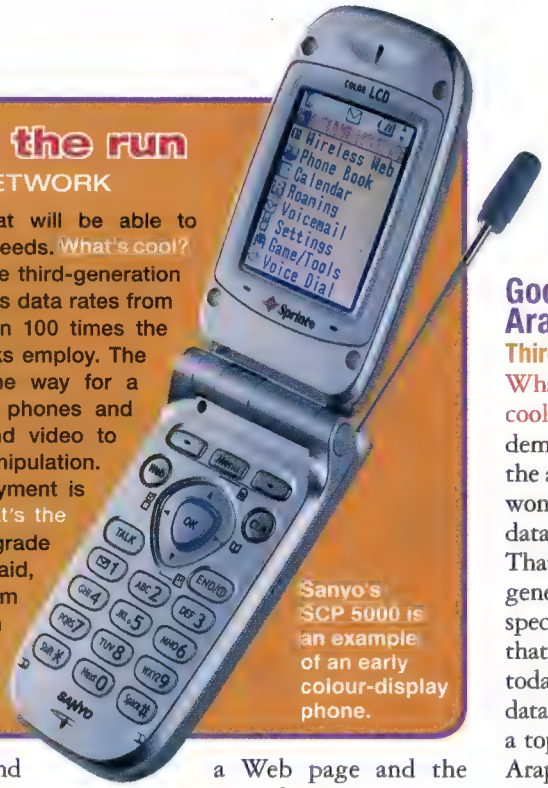
Intel, the Intel Inside logo and Pentium are registered trademarks of Intel corporation and its subsidiaries in the US and other countries.

Intel Financial Services pricing based on 48 month commercial rental agreement or consumer lease, payable monthly. Payments include GST and stamp duty. Conditions apply. Subject to credit approval.

Bandwidth on the run

NEW MOBILE PHONE NETWORK

What is it? Mobile phones that will be able to access the Internet at blistering speeds. What's cool? Significantly more bandwidth. The third-generation (so-called "3G") network promises data rates from 384Kbps to 2Mbps — more than 100 times the puny rate today's mobile networks employ. The speed increase should open the way for a host of applications for mobile phones and PDAs, from streaming audio and video to sophisticated real-time data manipulation. When's it coming? Broad deployment is still two to four years away. What's the catch? Telcos will need to upgrade virtually all their equipment. That said, they've already paid for spectrum licences and are feeling the pinch in the mobile voice market. Impact meter: 6



Sanyo's SCP 5000 is an example of an early colour-display phone.

wires required. Companies around the world are installing 802.11b in hotels, airports, and cafés. Meanwhile, corporate users will enjoy an 802.11a standard that's five times faster, at 54Mbps. When's it coming? Wireless 802.11b and 802.11a networks are already here; broad deployment will start in 2002. What's the catch? Speed drops as you get farther from a LAN access point, 802.11a isn't backward-compatible with 802.11b, and wireless networks can be less secure. Impact meter: 7

In search of a common language

Markup languages for everything

What is it? The *lingua franca* of the Internet. What's cool? By surrounding data with simple text tags, an XML (Extensible Markup Language) programmer can tell a computer to access corporate data no matter where it resides and then display it in a browser. Though the XML 1.0 spec was finalised in 1998, large companies have only begun to convert all their data to XML, while scores of industry-specific dialects have been developed for finance, medicine, and other sectors. Applications written in XML will also let search engines distinguish between, say, the name Price on a Web page and the price of an item on that page, leading to faster, more accurate searches. When's it coming? Markup dialects are just starting to become commonplace. What's the catch? Converting existing data to XML can be slow and expensive: to permit search engines to work optimally, corporations must adopt a consistent approach to coding data in XML, covering such points as how to label data fields (for example: last name, surname, or family name?). Impact meter: 9

Getting a little hyper

Hyper-Threading

What is it? A more efficient way to use processing power. What's cool? That 2GHz Pentium 4 chip might go like greased lightning, but parts of it are always sitting idle, waiting for your software to use them. Intel's Hyper-Threading technology will put those indolent circuits to use, allowing network servers to handle up to 30 per cent more users. Desktops may see a similar gain once applications are written to take advantage of it, but the benefits would likely be felt first by compulsive multitaskers who like to play games, download files, and print databases at the same time. When's it coming? Later in 2002 for servers; in 2003 for desktops. What's the catch? Windows XP and Linux support Hyper-Threading, but apps tuned for it are years away. Impact meter: 7

Good-bye PCI, hello Arapahoe

Third-generation input/output bus

What is it? A faster data pipe. What's cool? Today's multigigahertz chips demand a constant stream of data, and the aging PCI and AGP bus standards won't be fast enough at shuttling data between your PC's components. That's why Intel is developing a third-generation input/output interconnect specification, code named Arapahoe, that's up to 10 times quicker than today's fast PCI-X bus. PCI-X moves data in parallel along 64 wires, reaching a top speed of about 1GB per second. Arapahoe can employ from one to 32 lanes; each lane consists of a pair of wires and can shuffle more than 200MB of data per second between the CPU and add-in cards or integrated parts. Arapahoe can also prioritise data, so that, for example, real-time streaming data is processed more quickly. When's it coming? Early 2004. What's the catch? PC makers will have to support both standards as systems make the transition to Arapahoe, which may increase PC costs. Impact meter: 9

Peers looking at you

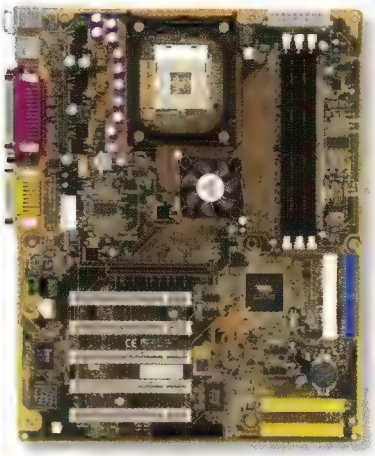
Peer-to-peer networking

What is it? A way to create *ad hoc* networks within a corporation or across the Net. What's cool? Peer-to-peer networking is more than just a way to swap MP3s. It will let businesses cache files, such as the latest virus definitions from Symantec or McAfee, on employees' hard drives. Files download more quickly when cached locally, and using employee hard drives will save money on server storage while preserving precious bandwidth. Tools like Groove (**www.groove.net**) employ file sharing, instant messaging, voice transmission, and more to help far-away colleagues collaborate on projects. Collaborative search software like OpenCola Folders (**www.**

The Award Winning King and Queen

invite you to the Kingdom of DDR

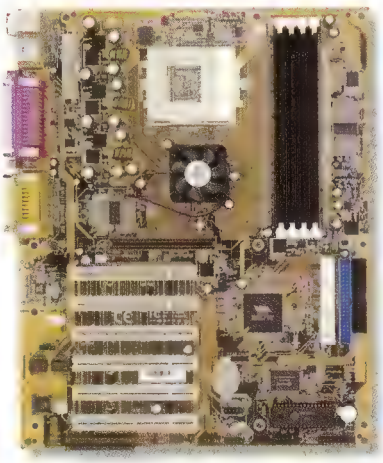
King of Glory AV40R



pentium 4 **P4X266**

INTEL Socket478 P4 Processor Support
VIA P4X266 Chipset
User Friendly Jumper-less Design
BIOS Programmable FSB Speed
BIOS Adjustable CPU Multiplier
BIOS Adjustable CPU Core Voltage
BIOS Adjustable DDR Voltage
BIOS Adjustable Chipset Voltage
BIOS IRQ Assignment
3 Phase Power
North Bridge Fan
3 DDR DIMMS (Up to 3GB)
5 PCI Bus Master
USB Cable Bundled
Optional RAID (Model: AV40R)

Queen of Elegance AK31



AMD Athlon XP **KT266A**

AMD Athlon/ Duron/Athlon XP Support
VIA KT266A Chipset
User Friendly Jumper-less Design
BIOS Programmable FSB Speed
BIOS Adjustable CPU Multiplier
BIOS Adjustable CPU Core Voltage
BIOS Adjustable DDR Voltage
BIOS IRQ Assignment
3 Phase Power
North Bridge Fan
4 DDR DIMMS (Up to 4GB)
6 PCI Bus Master
USB Cable Bundled (Optional)

Shuttle®
www.spacewalker.com

Manufacturer:
Shuttle Inc. TAIWAN
Tel: 886-2-8792-6168
Fax: 886-2-8792-6268
E-mail: sales@mail.shuttlegroup.com.tw

SATO TECHNOLOGY

SATO Technology Pty Ltd
www.satotech.com.au
E-mail: gary@satotech.com.au

Box Hill South, VIC	QUILDFORD, NSW	KINGSGROVE, NSW	ROCKLEA, QLD	OSBORNE PARK, WA
Tel: (03) 9899 6333 Fax: (03) 9899 0200	Tel: (02) 9721 0988 Fax:(02) 9721 3686	Tel: (02) 9554 3826 Fax:(02) 9554 9589	Tel: (07) 3255 6899 Fax:(07) 3255 6459	Tel: (08) 9244 9699 Fax:(08) 9244 2280

* All other brand or product names are trademarks or registered trademarks of their respective holders.

opencola.com) will let consumers stream content recommended by users who share their interests — a faster, smarter way to roam the Web. When's it coming? Apps are here now, but it will be a few years before peer-to-peer networking is broadly adopted. What's the catch? Network administrators who hate decentralisation see peer-to-peer apps as sources of security and administration headaches. Impact meter: 5

The see-through PC

TFT computers

What is it? Computers that can fit on a pane of glass. What's cool? Portable computers not much larger than their displays — namely, much smaller handhelds, tablet PCs, and notebooks. Manufacturers have been attaching low-speed circuits to glass for years — that's the basis of every thin-film transistor notebook screen. But LCD makers have been unable to put high-speed chips onto devices without heating the glass past its melting point. Now engineers at Fujitsu have found a way to affix microprocessors and fast circuits to LCDs at lower temperatures. When's it coming? Fujitsu expects to ship integrated processors and memory on glass by 2003. What's the catch? The challenge is creating glass sheets large enough to sell to manufacturers. Impact meter: 6

Data magnet

Magnetic RAM

What is it? Fast memory that retains data even after you've turned the power off. What's cool? MRAM uses magnetic charges instead of electricity to store bits; when you turn off your machine, your data remains in memory. You'll be able to power down at the end of the day and then pick up the next morning exactly where you left off — giving your system "instant on" capability. Unlike traditional memory chips, MRAM doesn't require a constant flow of electricity to retain data. That means big power savings for portable devices. It's also faster and sturdier than flash memory. When's it coming? MRAM will start to appear in 2004. What's the catch? It needs to be cheaper and offer more storage capacity than DRAM — and it ain't there yet. Impact meter: 8

Multiplicity of megapixels

NEW CAMERAS

What is it? Digital cameras that start to rival film cameras' output. What's cool? Camera makers continue to increase resolutions, making for sharper, more detailed digital photos. Meanwhile, companies like Sony and Minolta continue to increase the bit depth that digital cameras use to capture colour values. That should help render more subtle highlights and shadows. Once it's ready, you can expect OLED technology to make its way into camera viewfinders, where power savings over standard LCDs will boost battery life. When's it coming? Cameras that offer 5-megapixel resolution are here now, and manufacturers are already increasing bit depth beyond 32-bits. Expect prices for 4- and 5-megapixel models to come down to more reasonable levels over the mid year. What's the catch? Most people don't need more than 3.3 megapixels. Resolutions may start to climb slowly as fewer people need the added detail provided by higher resolutions. Impact meter: 5

Digital cameras like Sony's 5-megapixel DSC-F707 are closing in on the quality of film cameras.

Present and accounted for

Presence technology

What is it? A way to find people on the Net. What's cool? Call it the end of phone tag. Presence technology will let you know when your friends are logged on and what Internet device each is near — a PC, a PDA, or even a mobile phone. Some presence apps will figure out which device you're using and then choose the best medium for the message: video if you're at your PC, text if you have your Palm, audio if you're in your car. The GPS technology built into some mobile devices may let you pinpoint a person's location within 10m. When's it coming? Throughout the upcoming year. What's the catch? Want to be left alone? You may have to pay for the privilege. Impact meter: 7

It keeps going and going and going...

Fuel cells

What is it? An endlessly renewable power source for portable devices. What's cool? Imagine notebooks that work 20 hours at a stretch or mobile phones that never run out of juice. Both may be possible thanks to new developments in fuel cells. The Fraunhofer Institute in Germany has built prototype handhelds that use solar panels to recharge a tiny hydrogen fuel cell. US-based Medis Technologies says it has developed a fuel cell for mobile phones and notebooks that uses ethanol and water — a safer and cheaper alternative to hydrogen. Meanwhile, researchers at Motorola and Los Alamos National Labs in the US are developing a methanol fuel cell that's about the size of a postage stamp. When's it coming? One to three years for initial products. What's the catch? The first fuel cells could be pricey, and

Systems and Network Administrators, Microsoft's new certification helps get all your ducks in a row.

Systems and Network Administration is an increasingly specialist role and Microsoft recognises this with the introduction of our new Microsoft Certified Systems Administrator (MCSA) credential from January 2002. The MCSA credential has been designed to include a subset of the Microsoft Certified Systems Engineer credential exams, providing the opportunity to grow your skill set in the administration of Windows® 2000 based platforms, as well as validating your current network management capabilities.

The curriculum will include Microsoft Windows 2000 Network and Operating System Essentials; Implementing Microsoft Windows 2000 Professional and Server; and Managing a Microsoft Windows 2000 Network Environment. With growing demand for Systems and Network Administrators, this credential will not only help you do a better job, it may help you get a better one. Like all Microsoft Certification, MCSA is the perfect way to grow your career.

For more details about the MCSA credential, visit **www.microsoft.com/mcp/**

Alternatively to find your closest Microsoft Certified Technical Education Centre (CTEC) partner, Microsoft's premier go-to-market training channel, visit **www.microsoft.com/australia/training/CTEC/**

Microsoft® CERTIFIED Technical Education Center

Microsoft® CERTIFIED Systems Administrator

© 2001 Microsoft Corporation. All rights reserved. Microsoft, the Microsoft logo, the Microsoft Certified Technical Education Center and the Microsoft Certified Systems Administrator are either registered trademarks or trademarks of Microsoft Corporation in the United States and/or other countries. The names of actual companies mentioned here may be the trademarks of their respective owners.

MIC1095 11/01

they run hot and expel waste. You'll need to replace the fuel periodically, too. Impact meter: 6

The world's biggest brain

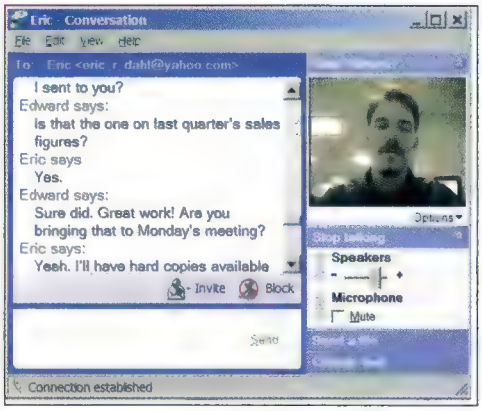
Distributed computing

What is it? A way to share computing resources across a network. What's cool? For the past few years, researchers have linked supercomputers across the Net to collaborate on divining the origins of the cosmos or predicting the weather. Companies like IBM and Sun aim to bring that kind of computing power to your desk. Soon, IT departments will be able to send computationally intensive problems to a grid of computers — a relatively inexpensive alternative to investing in new computers. Millions of consumers already use distributed apps like the SETI@home screen saver. When's it coming? Some apps are already here, but large-scale deployment is several years away. What's the catch? Building grid "server farms" could cost billions. Impact meter: 3

Guided by voices

Voice portals

What is it? Voice-driven Web sites. What's cool? Next time you call your bank or your travel agent, that pleasant-sounding person who answers the phone may be a Web server. Voice portals running high-end speech recognition and text-to-speech software will let you browse the Web and check your e-mail by phone more easily, as well as get information from financial service centres, airlines, and directory assistance. Thanks to advances such as AT&T's Natural Voices software, computer voices will sound much more like people. The software's "voice fonts" let application vendors create different accents, languages, and moods, or even mimic celebrities. When's it coming? Initial deployment has begun; widespread use is expected in three to five years. What's the catch? Speech recognition isn't 100 per cent accurate, and on-the-fly synthesis still sounds a bit robotic. Impact meter: 6



Windows Messenger lets you collaborate on documents and hold audio and video conferences.

May we see some ID, please?

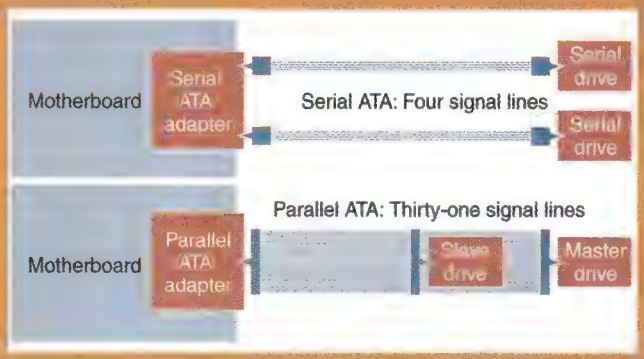
Electronic wallet

What is it? A single storehouse for personal and financial data. What's cool? With all your information in one place, you'll be able to buy anything on the Web with a single click, or check your schedule from any Net-connected device. But first you may have to show your Passport. Microsoft's scheme for verifying user identities, Passport, is central to the company's upcoming .NET My Services initiative, which will encompass e-mail, an address book, a scheduler, a wallet, and other Net-based services. Although the concept of online IDs isn't new, the release of Windows XP may make them unavoidable. Want to use XP's Messenger or Net telephony features, log on to Hotmail, or buy a Microsoft e-book? You'll have to sign up for Passport. When's it coming? Passport's already here, and .NET My Services and competing schemes are due later in 2002. What's the catch? Do you really trust Microsoft to safeguard your information? Privacy watchdogs don't — they've filed suit to alter key provisions of Microsoft's plan. Impact meter: 8 ■

A serial thriller

SERIAL DATA

What is it? A faster interface for disk drives. What's cool? Speed, baby. The serial ATA interface is capable of transferring up to 600MB of data per second — six times the rate of the current parallel ATA interface. That should keep data flowing smoothly to your CPU for years to come. Serial ATA can operate at lower voltages, which becomes necessary as low-voltage microprocessors become standard. It also uses longer, thinner cables that won't block airflow inside the system case, which lets systems run more coolly and allows PC makers to build more compact desktops and notebooks. The chart here illustrates how it compares with today's standard. When's it coming? The first half of 2002. What's the catch? It requires more motherboard electronics than parallel devices do, increasing initial system costs. Impact meter: 9



FEATURE	Parallel ATA100	Serial ATA
Data transfer speed	100MBps (burst mode)	150-600MBps
Maximum cable length	46cm	91cm
Number of signal pins	26	4
Minimum voltage	5V	500mV
Drive bandwidth	shared	dedicated

Save 50-90% of the time to prepare a business plan

A working Business Plan is vital to the success of any organisation.

Every business person will agree with this fact, yet many business owners fail to attend to this vital responsibility. Why?

1. Many business owners simply don't realise the crucial role of Planning. Planning is foolishly viewed as wasted time.
2. Many don't understand the planning process, nor the principles involved.
3. Many lack the time and/or commitment to conquer what they view as a daunting task.

These reasons are very valid, but do not change the fact that businesses with a working business plan are much more likely to succeed.

This is why MAUS have designed an easy to use, fast and efficient way to write a working Business Plan that requires only limited computer literacy and your basic business skills. Whether you plan is for a loan application, idea generation, business expansion or for selling the business, MAUS MasterPlan is the only solution you will need.

(6/6) Ease of Use
(5/6) Features
(5/6) Value for Money
(6/6) Overall

PC AUTHORITY RECOMMENDED (May 1999)

- ❑ Yes, I am very interested in MasterPlan, please have a consultant contact me to discuss the product in more detail.
- ❑ Yes, I would like to save 50-90% of the time to prepare a business plan, please send me a **FREE Information Kit** on MasterPlan.

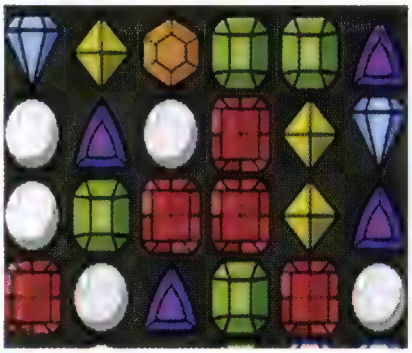
Name: Position:
Company: Number of Employees: ❑0-5 ❑6-25 ❑26-100 ❑101+
Address: Suburb: State: Postcode:
Phone:( ) Fax:( )
Email: PCW

Officeworks Harvey Norman MYER GRACE BROS

Also available from Harvey Norman, Officeworks, Office National, AIM Bookshop, Grace Bros, Myer and other leading retailers.

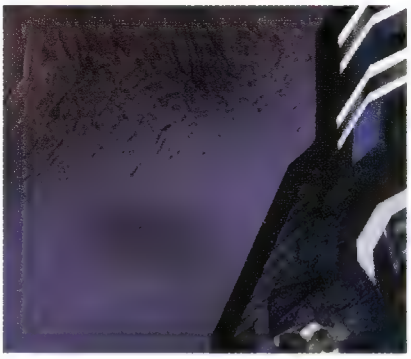
FAX (02) 9925 0257 or mail to MAUS Business Systems:
235 Pacific Highway, North Sydney NSW 2060
Ph: 1800 350 013 or 02 9957 3827
www.maus.com

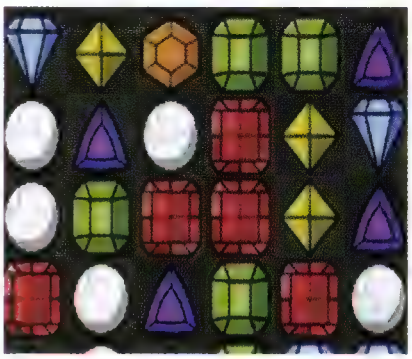
MAUS

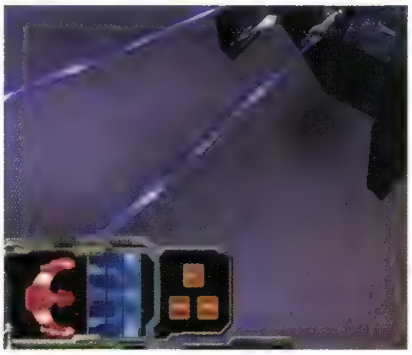


We round up the best online games as well as the biggest new releases to help kickstart your gaming action this summer. First, take a break with the Web's most addictive puzzles, sports simulations and other diversions — no CD required.

Then, turn to page 70 for 10 of the hottest new games to hit the market.







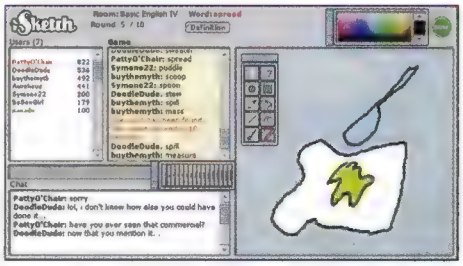
Gaming's

Look to the Net this summer for free gaming action. Edited by Grace Aquino

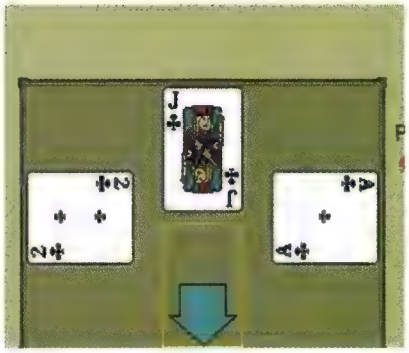
Pictures worth a couple of words

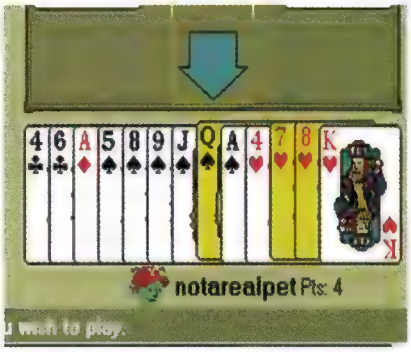
FREE ISketch ★★★★½

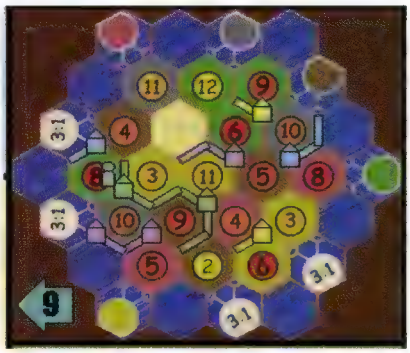
Remember Pictionary, the popular board and TV game in which one player sketches clues to a mystery word or phrase that other players try to identify? It's alive and well on the Net at ISketch (**www.isketch.net**) as a fun, free, easy, and — for now — no-registration game. Point your Shockwave-equipped browser to the site and choose a playroom (or create a private one) with a language (Danish, French, German, and so on) or a clue category (food, movies, computer games) you like. The game assigns one player the drawing duty



ISketch picks up where Pictionary left off.







All-stars

as others type in their guesses for the mystery word or phrase. The sketcher's drawing tools include a pen, an airbrush, and an eraser. Once you get going, it's easy to get hooked. Caution: sketching with a mouse isn't everybody's cup of tea — this game may convince you to buy a pen tablet and stylus.
– *Yardena Arar*

Get ready to rumble

FREE Knockout Kings Web Boxing ★★★★½

Boxing is a great way to let off some steam, and what better way to step into the ring than with eight of the most famous boxers of all time? Knockout Kings Web Boxing from EA.com (**www.ea.com/sports/games/hq_kok00/demo/home.jsp**) brings fantasy bouts like Holyfield versus Ali straight to your browser. It offers an impressive level of depth and decent-looking 3D graphics. After a quick download, you play solo against your chosen opponent, competing against other players for high scores. Both the keyboard and the game pad controls are easy to learn but challenging to master.

To access the free game, log on to EA.com and get ready to punch, block, and dodge your competition.
– *Eric Dahl*

Where were you in '82?

FREE 80s Classics ★★★★☆

Hyper-realistic 3D graphics and theatre-quality sound — who needs 'em? Give me the ridiculously simple, endlessly addictive arcade blockbusters lovingly recreated at Shockwave.com's 80s Classics (**www.shockwave.com/sw/games/arcade/classics**). My personal favourite: Root Beer Tapper, in which you play a soda jerk who must slide beverages down the bar to a crowd of cranky cowboys, sports fans, and even aliens. Centipede, Defender (I and II), Robotron, Spy Hunter, and five other vintage time-wasters are also available. Browser-based play is free; truly obsessed retro gamers can pay $US20 for downloadable versions of all 11.
– *Harry McCracken*

Burning rubber and bandwidth

FREE Need for Speed Web Racing ★★★★☆

Racing fans need look no farther for fast, rubber-peeling action. Just brake for Need for Speed Web Racing from EA.com (**www.ea.com/worlds/games/hq_nfs00/demo/home.jsp**). Racers hop into their choice of cars — such as a Chevrolet Corvette — for a variety of single-player contests over distinct-looking landscapes and racetracks. There's one roadblock: you have to download every track and every car, some of which are 4MB in size. The download can take some time, especially on a dial-up connection. Once you're past that bottleneck, you can cruise at the limit.
– *Danny W. Lam*

Need for Speed Web Racing provides rubber-peeling action.

Associate this

FREE Strike a Match ★★★★☆

Part wordplay, part trivia quiz, part game show, Boxerjam's Strike a Match (**www.boxerjam.com**) is a free, pleasing, and surprisingly habit-forming multiplayer game. The "match" in the game's title refers to word connections: in each round, you are presented with an array of words that fall under various, unidentified topics (anatomy or car parts, for example). Then you're given several seconds to identify the words that belong together. The more time you take, the lower your score becomes. With amusing graphics and a level of difficulty that won't insult a moderately intelligent player, Strike a Match is a real winner. I only hope that Boxerjam gets enough advertising to stay in business.
– *Y.A.*

Easy play is in the deck

FREE Yahoo Card Games ★★★★☆

Take a break from your computer chores and head for the virtual tables of Yahoo Card Games (**http://games.yahoo.com**). Whether you use an existing Yahoo ID or sign up for a new one, you'll be playing cards within seconds. Players at all skill levels can sit in at dozens of card games, including Blackjack, Euchre, Bridge, Pinochle, Go Fish, and my favourite, Hearts. It took a while to find a game at my pace and skill level, but once I found it, the play resembled a real game. It even had a little table talk thrown in. All the games include instructions on how to play. Shy types can compete against the machine, or choose to watch others battle it out. Yahoo Card Games are simple, fun, and free. All you need now is a little bit of luck.
– *Dennis O'Reilly*

Be dazzled

FREE Bejeweled ★★★½☆

Diamonds are a girl's best friend. My sparkler is Bejeweled, also known as Diamond Mine, a highly addictive and amazingly simple puzzle game from PopCap (**www.popcap.com**), in which you swap adjacent pairs of colourful gems and match horizontal and vertical lines of three or more. The more jewels you match, the more bonus points you score. You can play straight from your browser or download an enhanced version — complete with glistening gemstones and flashy sound effects — onto your machine. The downloadable version includes a timed level for players seeking more of a challenge.
– *Felicia Williams*

Bejeweled: this amazingly simple puzzle game is highly addictive.

Insect invasion

Dark Orbit ★★★½☆

If Alfred Hitchcock had set his classic film The Birds in a futuristic deep-space mining outpost, he'd probably have produced WildTangent's Dark Orbit (**www.gamespyarcade.com/webgames/action/dark_orbit.shtml**), a fast-paced 3D shooter game in which you command a mining ship that's been retrofitted with weapons. Your mission: desperately fight to escape a planet crawling with encroaching hordes of angry alien insects. Blessedly absent from most of the game is the truly awful soundtrack, which rears its ugly head only at the end of each level. The game requires WildTangent's game

KVM, Software or Hardware?

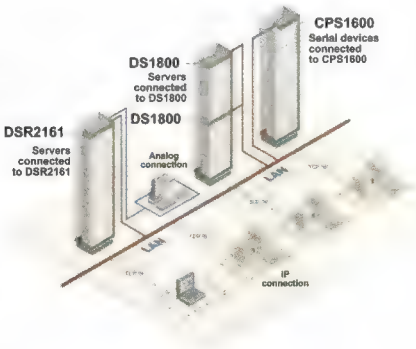
KVM stands for Keyboard, Video & Mouse.

When you have the need to manage a multitude of servers and their attached devices, there are a lot of choices to be made. One of the items that can help simplify this is KVM hardware.

Unlike Software clients or PCI hardware solutions, a KVM switch is not Operating system or Vendor dependant. Rather, they simply connect directly into the Keyboard, Video and mouse ports of your servers (USB, Sun or PS/2).

The latest solution from Avocent incorporates Remote access while retaining the standard local interface. This means you can access your server hardware from anywhere (even home) without a trip to the server room.

The DS Series is available with a multitude of options.



DS1800 allows you to monitor EVERY server simultaneously, from anywhere, anytime via the LAN/WAN.

DSR units provide a mix of LAN and Local access. They also use cost effective CAT 5 cable between the servers and the DSR units.

Locally the switches support resolutions of 1600 x 1280, while the LAN users are currently limited to 1280 x 1024 (due to bandwidth restrictions).

DS also uses its own software to ensure that your servers remain secure.

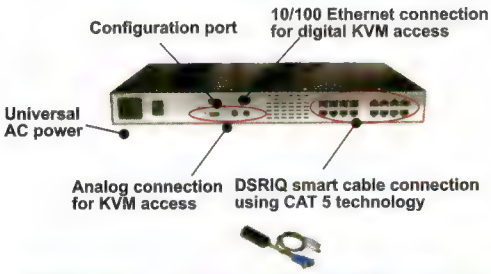
All Avocent units have a simple OSD (local) and GUI (LAN) menu system for port selections.

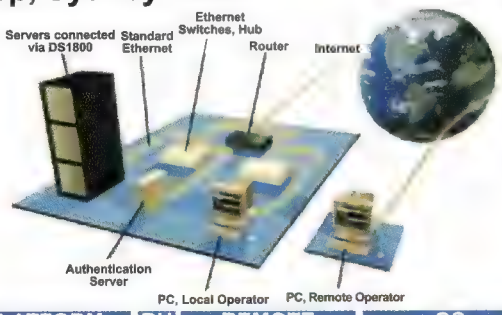
DS & DSR units are 1RU to ensure no extra space is taken from your rack and an option is available to "0RU" rack mount, if needed.

Avocent is distributed in Australia by Blue Ridge Systems Pty Ltd, 1800 680 086 and will be on display at the N+I show at Darling Harbour, March 7 - 9, 2002

No Space in the rack for control?

We can help, ask us about KVM integration solutions
Come see us in March at NetWorld+Interop, Sydney 2002

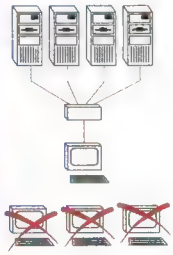




Distributor of

Formerly

MODEL	USERS	PORTS	PLATFORM	RU	REMOTE	OS
SwitchView	Single	2, 4	PS/2 & AT	1	Via DS	Any Windows 95,98, 2K, XP Linux Unix Solaris MAC OS
SwitchView OSD		4, 8	PS/2			
AutoView						
OutLook	1, 2 or 4					
AutoView 200	2	4, 8				
AutoView 400			PS/2, USB & SUN			
AutoView 400 HD		16, 24				
OutLook HD	1, 2 or 4	16	PS/2			
XP	hundreds	hundreds	PS/2, MAC & SUN	3		
DSR1161	1 local, 1 via LAN	16	PS/2	1	inbuilt, 1 via LAN	
DSR2161	1 local, 2 via LAN	16			inbuilt, 2 via LAN	
DSR4160	4 via LAN	16			inbuilt, 4 via LAN	
DS1800	8 via LAN	8	PS/2, USB & SUN		inbuilt, 8 via LAN	



visit www.blueridge.com.au or call 1800 680 086

Avocent, the Avocent logo, 'The Power of Being There' and 'KVM over IP' are trademarks of the Avocent Corporation. Copyright 2001.

Dark orbit is a fast-paced 3D shooter game set in a deep-space mining outpost.

driver, which is a free download. You do have to shell out $US20 to play the full game, but given Dark Orbit's eye-popping 3D graphics and exciting game play, the one-time fee is reasonable.
– *Andrew Brandt*

Build an empire

FREE Settlers of Catan ★★★½☆

Bartering, not military might, is the key to conquest in Settlers of Catan (**http://settlers.cs.northwestern.edu**). Here's what's at stake: you try to outmanoeuvre your opponents by building settlements, roads, and cities from natural resources. Begun as a research project in artificial intelligence, this free and ad-free Web site draws enough dedicated players to sustain a ladder league. Multiplayer gaming is the norm, though you can go solo against robots that become more challenging as you progress. Game play is smooth, and contests last from 30 to 60 minutes. The site is still under development, so you'll occasionally lose your connection, but Settlers of Catan fans will appreciate the chance to play pick-up games at their leisure.
– *Jeffrey Kuta*

Gaming on the fly

FREE SabreWing ★★★½☆

If you were a fan of Wing Commander, X-Wing, or other epic space-combat titles of the past decade, the frenetic 3D dogfights in SabreWing (**www.sabrewing3d.com**) will bring back fond memories. The best part: this fast-paced space-fighter simulation plays entirely over the Web, streaming missions to you on the fly. Just download WildTangent's free 840KB Web driver (**www.wildtangent.com/candy/webdriver.html**), and after a quicker-than-Flash-movies load time, you'll be blasting aliens with the best of them.
– *Eric Dahl*

Get your motor runnin'

FREE Gears ★★★½☆

Onward Designs' Gears (**www.shockwave.com/sw/content/gears**) is a fun and relatively challenging puzzle game enhanced with appropriately mechanical music. The goal is to drag and drop a set of large and small green gears onto the playing board and link them with blue cogs to make yellow gears spin in the direction of their arrows. As the game progresses, the number of cogs increases, making the puzzles more difficult. Each puzzle is timed — the longer you take, the lower your score. The game will get your brain in gear while it entertains. Gears requires Macromedia's Shockwave plug-in.
– *F.W.*

Gears is a fun and relatively challenging puzzle game.

Tips for smooth game play

Follow these guidelines to get the most out of your time playing online games.

1. DOWNLOAD THE NECESSARY PLAYERS AND PLUG-INS. To run Dark Orbit, 80s Classics, and Settlers of Catan, for example, you need WildTangent, Shockwave, and Java players, respectively. Your browser alerts you if you need to acquire such programs and then takes you to the appropriate download page.

2. MAKE SURE THAT YOU HAVE THE MINIMUM SYSTEM REQUIREMENTS. It's best to use a machine equipped with at least a 233MHz processor, 32MB of RAM, integrated 3D graphics, a modem, a sound card, and speakers.

3. CONSIDER BUYING A GRAPHICS BOARD. For optimum 3D-gaming performance, invest in a good graphics board. For help in choosing a board, see PC World's October 2001 issue (page 126) for reviews of boards and chipsets.

4. MAKE SURE THE PROGRAMS ON YOUR PC ARE COMPATIBLE. In particular, look at the game, the browser, and the operating system. To check specifics about potential problems and driver updates, read the gaming site's FAQ page or visit Blue's News (**www.bluesnews.com**) or GameSpy (**www.gamespy.com**).

5. OPT FOR A SEPARATE INPUT DEVICE. Try using a game pad, a steering wheel, or a pen tablet if your keyboard or mouse doesn't provide enough control. Check out Logitech's WingMan Strike Force 3D (**www.logitech.com**), Microsoft's SideWinder Force Feedback 2 (pictured at right), and other joystick options from Thrustmaster (**http://au.thrustmaster.com**); or consider a tablet from Wacom (**www.videobytes.com.au/wacomframes.html**).
– *Grace Aquino*

Jumpstart Performance with DDR for Pentium® 4

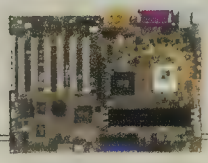
Push your performance to the edge with ASUS® Pentium® 4 DDR motherboards. The ASUS® P4B266 and P4S333 deliver increased bandwidth and features, letting you get the most out of your Pentium® 4.

Work faster. Play harder. ASUS Pentium® 4 motherboards take you to the top!

P4B266

P4B266 Specification

- Intel® Pentium® 4 processor supporting socket 478 CPU up to 2.4GHz
- Intel® 845D chipset DDR solution
- 3 x DDR DIMM Sockets
- 4 x USB 2.0 and 4 x USB 1.1 Ports
- 6-channel 3D Hardware PCI Audio
- Intel® 100/10 Mbps Ethernet LAN controller(optional)
- Intel® Application Accelerator & comprehensive software bundled
- ATX Form-factor



P4S333

P4S333 Specification

- Intel® Socket 478 Pentium® 4 CPU support up to 2.4GHz+
- SiS 645 chipset
- 3 x DIMM sockets with PC2700/PC2100/PC1600 DDR memory support
- 6-channel 3D hardware PCI audio (optional)
- SiS Ethemet 10/100 Mbps LAN controller (optional)
- S/PDIF-in/ -out interface (optional)
- ATX Form-factor

• Motherboard specifications are subject to change

Distributor

Achieva Technology Australia
Tel: 61-2-9742-3288
www.achieva.com.au

Cassa Australia
Tel: 61-7-5445-2992
www.cassa.com.au

Altech Computers
Tel: 61-2-9748-2233
www.altech.com.au

ASUSTeK COMPUTER INC.
http://www.asus.com

Game on for Summer!

Here are 10 of the best new games on the market.

By Steve Polak

Battlegrounds

This game lets you indulge in a little Star Wars magic as you take control of one of six popular groups from the movies. You can lead the Rebels, Imperials and even weirder groups like the Gungans and Wookies, in a fight for strategic control of your corner of the Star Wars universe. The game is based on the extremely successful Age of Empires engine, which means it will feel familiar for fans of that game. The audio is atmospheric with Darth and many of the other well-known Star Wars folk part of the action as playable characters, each with their own repertoire of speech samples. This is a great game to pick up and play, as long as the similarity to Age of Empires doesn't bother you.

Distributor: Electronic Arts
Price: $89.95
URL: www.lucasarts.com

Whether you're leading a bunch of Wookies or Imperial fighters, you can have your own piece of Star Wars magic at home with Battlegrounds.

FIFA 2002

Electronic Arts has in the past been justly criticised for knocking out revamped versions of its sports games with little in the way of innovation or significant improvement. However, with FIFA 2002 this trend has, for the moment at least, been broken. FIFA 2002 is visually a *tour de force* and the new, more strategic passing system EA has implemented makes for a less random play experience. The game may have slowed down significantly, but the upshot of the new control system is that you feel more in command of what is happening on the screen — and this has to be a good thing.

Distributor: Electronic Arts
Price: $69.95
URL: www.easports.com.au

Battle Realms

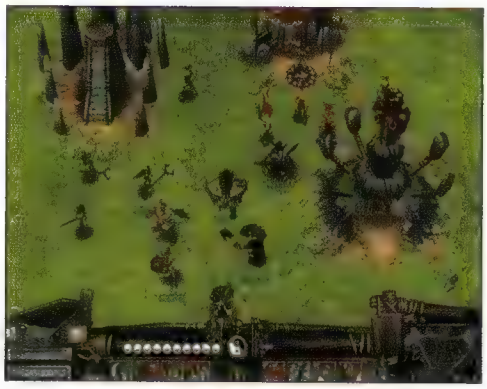
If you enjoy strategy games and like the sound of something a little different, then Battle Realms is for you. The game draws on Japanese culture as well as a Tolkienesque pantheon of mythical folk to come up with a gameworld that feels fresh and interesting. In Battle Realms you develop your army and, even more interestingly, special 'hero' characters who acquire awesome magical powers they can then use to dominate the battlefield. This is a game with lots of colour, a great campaign and some excellent spell effects. The 'yin and yang' magic system is also very intriguing and the way the game lets you use the territory to help you stage ambushes is satisfying. Battle Realms has buckets of atmosphere, and delivers a strategy mixture with a different feeling.

Distributor: Ubi Soft
Price: $89.95
URL: http://battlerealms.ubi.com

Return to Castle Wolfenstein

He is tough as nails, drinks hydrochloric acid with his dinner and is the star of what is easily the most captivating 3D action shooter to be released in the last year or so. His name isn't Max Payne, it's BJ Blazkowicz, and he is the one-man wrecking crew you team up with as you whip Hitler's minions in the atmospheric Return to Castle Wolfenstein. This game, based on the classic original Wolfenstein, has you fighting Nazi hordes in an alternative past, a time when Hitler was successful in meddling in occult matters and created an army of undead and genetically mutated abominations to fight for his cause. This 3D shooter features some of the most gruesome enemies you will see in a video game and truly superb levels and weapon effects. The volumetric flamethrower effect has to be seen to be believed. A great game to play at night with the lights low and the sub-woofer turned up to 11.

Distributor: Activision
Price: $99
URL: www.returntowolfenstein.com



Japanese culture and Tolkien-like mysticism come together in the strategy game Battle Realms.

Ghost Recon

In Ghost Recon your mission is to fight rebel generals in Russia who — in a bid to return to the glory days of the Soviet Union — have taken hostages and are engaging in

THE POWER BEHIND THE FORCE...

pc world best buys

Commitment to Excellence

Hightech Information System Ltd.

GRAPHIC FORCE / GRAPHIC MASTER

2D/3D GRAPHICS AND VIDEO ACCELERATOR

GeForce 3

GeForce 2 MX 400

Other products available in our range:-

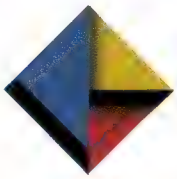
AGP

- S3 Trio 8MB
- TNT2 M64 32MB
- GeForce 2mx - 200
  - 32MB, 64MB
  - Optional TV out
- GeForce 2mx - 400
  - 64MB, Optional TV out
- GeForce 2 Pro 64MB with TV out

PCI

- TNT2 M64 32MB
- GeForce 2mx - 200 32MB
- GeForce 2mx - 400 64MB with TV out

distributed by



AKA TECHNOLOGY www.akatech.com.au

NSW
Unit 1, 2 North Rocks Rd,
Parramatta North, NSW 2151
Ph: 61 2 9630 1588 Fax: 61 2 9630 1529

VIC
Unit 9, 214-224 Wellington Rd,
Mulgrave, VIC 3170
Ph: 61 3 9562 0022 Fax: 61 3 9562 2696

QLD
Unit 5, 46 Longland St,
Newstead, QLD 4006
Ph: 61 7 3852 1899 Fax: 61 7 3852 1755

SA
Unit 4, 2-4 Marker Ave,
Marleston, SA 5033
Ph: 61 8 8371 3388 Fax: 61 8 8371 3833

WA
Unit 2, 126 Hector St West,
Osborne Park, WA 6017
Ph: 61 8 9443 3388 Fax: 61 8 9443 4420

NZ
Unit B, 6 Henderson Place,
Penrose, Auckland, NZ
Ph: 64 9 622 8988 Fax: 64 9 636 9762

terrorist activity to support their cause. Squad-based 3D action is the name of the game here, and you will have to be patient, know your terrain and use your team co-operatively if you are to infiltrate heavily fortified enemy positions. Ghost Recon features combat effects like muzzle flash and smoke, lots of real world weapons and enemies that are good at countering your efforts with clever attacks of their own. As long as you don't mind getting killed a bit at first, this is a superb game.
Distributor: Ubi Soft
Price: $89.95
URL: www.ghostrecon.com

Stronghold

First-rate strategy games are certainly coming out of the woodwork at the moment. Stronghold doesn't have the broad historical scope or grand scale of some of its contemporaries, but it does let you do something very cool: build and defend massive castles as you fight for control of England in medieval times. There is a lot of attention to detail here and the world you create is realistic, with farms, blacksmiths, bakers, fletchers, jesters and just about anything you'd expect from the epoch. A first-rate campaign and superb sound round off the package.
Distributor: Take 2 Interactive
Price: $89.95
URL: http://stronghold.godgames.com

The Sims: Hot Date

Hot Date is, as the name implies, an expansion pack for the original The Sims game, but the focus as you oversee the life of your simulated citizen is now on meeting new people — with the objective to get down to some 'convivial callisthenics'. The game doesn't get too hot and heavy, but you do get to meet people, try to pick up a date and see if your 'Sim' can get some lovin'. As always, playing with the electronic emotions of your virtual pals is hugely engrossing and the results can be extremely funny. Getting

Lead your Sim into all kinds of trouble in Hot Date.

caught having an affair, involved in a dust-up, or being rejected by a member of the opposite sex because you have smelly armpits are just some of the situations you'll be able to enjoy in the game. The animation when your nervous couple cuddles for the first time, complete with the cheesy 'outstretched arm yawn' move, is superb. If you liked The Sims, this is an essential purchase.
Distributor: Electronic Arts
Price: $39.95
URL: http://thesims.ea.com/us/about/hotdate

Alien Versus Predator 2

This is another great and, dare we say it, 'atmospheric' action game. This time the future and not the past is the inspiration, as you play as either of the popular sci-fi killing machines Alien or Predator. You can also try to take on these abominations as a humble human space marine. AvP2 is a really tense game. Playing as the marine is probably the most satisfying as you get to use the motion tracker to sense hostile movement. The levels are sprawling and there is lots of variety. The soundtrack is also superb, especially if you have 3D surround sound.
Distributor: Vivendi Universal
Price: $89.95
URL: http://avp2.sierra.com/

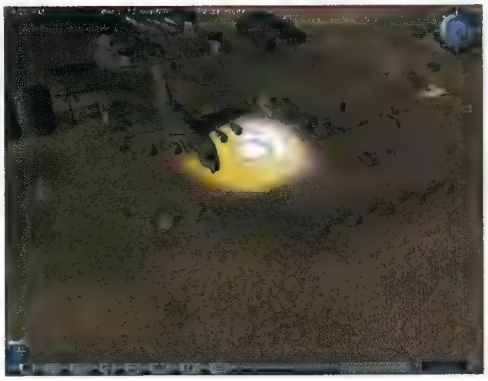
Flight Simulator 2002

If you want realism, seemingly boundless areas to explore and true-to-life cockpit avionics, then this game is the best out there. Flight Simulator 2001 features a new air traffic control system in which the game tries to keep track of all of the pilots (either online or in a single game). The system works, too, with lots of event-specific directions from the control tower. There is also a new floatplane, and the effects have been tweaked, such as the many camera views of your plane you can call up. This is a quality sim, which will appeal to all who feel they belong 'up there'.
Distributor: Microsoft
Price: $99
URL: www.microsoft.com/games/fs2002

World War III: Black Gold

This ambitious strategy game sees you fighting for control of a number of Middle Eastern hot spots. The look and sound of Black Gold are brilliant, with superbly crafted 3D units and varied and interesting terrain for you to fight over. The interface is a little tricky at first, but the rewards are there if you are prepared to persevere and get the hang of the controls. The missions are hard but engaging, as you send your troops into hostile territory in a bid to restore peace to the region. This game, which has been in production for a couple of years, is a winner, even if it is a victim of unfortunate timing in terms of real world events.
Distributor: Red Ant
Price: $79.95
URL: www.jowood.com/en ■

Help restore peace in the Middle East with the ambitious strategy game World War III.



Styled by F.A. Porsche. Engineered by Fujifilm.

DESIGN BY F·A·PORSCHE

Cast your eyes over the stylish new Fujifilm FinePix6800 Zoom and 4800 Zoom digital cameras. Recognise the sleek lines? The elegant curves? The magnesium alloy body? All courtesy of design legend, F.A. Porsche. But these compact, new-generation models will capture more than your imagination. Thanks to Fujifilm's extraordinary engineering, the Super CCD image sensor ensures rich, true to life colours, with an incredible resolution of up to 6 megapixels.* That's a standard usually reserved for professionals. FinePix cameras are a delight to look at and a delight to use. Features such as a 4.4x digital zoom†, videoconferencing, AVI video and audio are all easy to operate, leaving you free to focus on the images that matter to you. New FinePix digital cameras - Porsche panache, Fujifilm finesse.

SUPER CCD

digital
Tools for the imagination.

FinePix6800 Zoom
FinePix4800 Zoom

* FinePix6800 Zoom. FinePix4800 Zoom features up to 4.3 megapixels.
† Digital Zoom in 640 x 480 pixel mode. FinePix6800 Zoom up to 4.4X. FinePix4800 Zoom up to 3.75X.

www.hanimex.com.au

FUJIFILM

PHOTOGRAPHS BY JOHN KUCZALA

BY CARLA THORNTON

It's a great time for digital cameras. With 4-megapixel models hitting store shelves, photography buffs are getting more for their money than ever before. These new high-end cameras take digital photography to new heights, producing images that look as good as — and, in some cases, even better than — images on film.

Picture this

To put each of the cameras through its paces, we took a variety of pictures indoors and outdoors, at both the highest and the lowest resolutions, with and without the flash. We evaluated the resulting images in three forms: as low-resolution shots viewed on screen and as higher-resolution 4x6in and 8x10in prints.

Enlargements? Use film

Not all is picture-perfect for digital camera enthusiasts. Traditional film cameras are still better equipped for the price.

Consider also the issue of picture quality. Affordable film cameras maintain a slight edge over digital competitors in producing sharp, colour-accurate pictures. And if your work requires poster-size enlargements, you should probably stick with film. According to Sally Smith-Clemens, a product manager at Olympus, to begin to approximate the fine grain in a 16x20in enlargement produced by a film camera, you would have to invest in a 6- to 8-megapixel professional digital camera.

However, any of the top digital cameras will easily serve your needs for 4x6in or 5x7in snapshots and 8x10in images at very close to film quality.

Goodbye, serial port

One digital camera trend that owners of older PCs may not appreciate is the disappearance of the serial connection. Many of last year's cameras still had one, but now even low-end models rely exclusively on the faster, more modern USB port to connect to your PC. If you're determined to keep your older PC and you have a new digital camera, you'll have to buy a USB expansion card, which plugs into an empty PCI slot.

High-end digital cameras are finally starting to come down in price. To help you find the best deal, we review the latest crop — from new compact 4-megapixel models to good choices for home and business use.

The Big Pixel

CANON POWERSHOT G2

The fine print The $1999 4-megapixel PowerShot G2 took pictures that showed fine detail in our still life and rich, realistic — albeit slightly oversaturated — colour. The G2's LCD can swing open like a camcorder's and twist on its hinges to point up, down or in the same direction as the lens — convenient for taking self-portraits, especially when you're using the camera's bundled wireless remote control. A 32MB CompactFlash card comes with the unit; it can hold up to 337 highly compressed, snapshot-size photographs (most other cameras are bundled with cards offering half that amount of storage, or even less). The PowerShot G2 is loaded with options, including semiautomatic and fully manual modes for experienced users. On one charge of its lithium ion battery, the G2 took 348 pictures.

The G2 is heavy and boxy; it's hard to grip with one hand. Stiff dials make changing modes difficult. If you frequently change the size and quality settings for your pictures — and if you like to experiment with exposure — the G2 may not be your best choice: to use the same image size and quality settings in different modes (in shutter-priority mode as well as in full-automatic mode, for example), you must go back through the menus and re-enter your settings.

Like its predecessor, the G1, the G2 requires you to hold down a button on the side and press up and down arrows to focus manually. The focus gauge is now visible, though, and the camera enlarges the centre of the photo during the operation to help you determine the correct sharpness.

A couple of other improvements: you no longer have to press a separate button to use the digital zoom, and you can use the zoom control to magnify shots in playback. You still must press a separate button to see thumbnails, however — a function that other cameras incorporate into the zoom control.

The upshot Canon's PowerShot G2 offers great photo quality, long battery life, and top-end features for enthusiasts, though novices might find it to be a bit complicated.

CASIO QV-4000

The fine print The $1995 QV-4000 turned in impressive image quality scores in our lab tests: all shots were sharp and properly exposed. In our outdoor shots, the Casio retained the details in deep shadows. We did notice some minor mottling in the blue sky, which also showed a very slight purple cast. Battery life was an impressive 389 shots — despite the camera's reliance on two simple AAs.

The QV-4000's selector dials make it relatively fast to operate: one dial, for example, lets you select between program, aperture priority, shutter priority, and manual exposure modes. Another dial, next to the shutter release, lets you rapidly choose your aperture or shutter setting if you're in program or manual mode. The menus are far simpler and cleaner than those found in earlier models. The QV-4000 retains the Best Shot mode of earlier Casio models; it's easier to use and far more flexible than what you find in most digital cameras.

The manual focus on this model is almost useless, however. You have to use the thumb-button and watch the image in the LCD viewfinder to focus nearer or farther away. Unfortunately, this process is extremely slow and gives you no icon or gauge to indicate whether you're going in the right direction.

The camera's zoom button, which is situated where your right thumb would naturally rest, felt a bit stiff, but zooming is quiet and smooth. Deleting unwanted shots while in shooting mode takes no time at all. A small LED panel on top of the Casio offers a wealth of useful information, including exposure and aperture value settings and shutter speed (after you press the shutter release halfway down).

One odd quirk about the LED: when the camera is in aperture priority or shutter priority mode, you must turn on the main LCD to change the aperture or shutter speed. With the LCD off, the LED displays the last setting you selected for the aperture or shutter speed, but you can't change either with the selector dial.

Other useful features in the QV-4000 include a panorama mode, manual white-balance calibration, spot metering, bracketing, and both multi-area and spot-focusing options. For business documentation, you can add a time-and-date stamp right on the image.

The upshot The QV-4000 is a flexible camera for families or businesses, and it's easy for people with very different photographic interests and skill levels to use.

Casio QV-4000a

FUJIFILM FINEPIX 6900 ZOOM

The fine print the $2599 FinePix 6900's photos look good both printed and on screen, with true, vivid colours and sharp detail. Only the colours in our flash-disabled shot looked a little oversaturated. The 6900 offers complete control over exposure and comes packed with extras. It has a 3.3-megapixel charge-coupled device, but you can take interpolated 6-megapixel pictures at the highest-resolution setting of 2832x2128 pixels. You can zoom in on your subject up to 6X optically and another 4.4X digitally. The camera has numerous dedicated shortcut buttons for accessing functions quickly. Other buttons activate the camera's manual focusing ring or put it in continuous shooting mode, so you can take up to five pictures in one second.

With the standard 16MB SmartMedia card, you can shoot silent movies of about 90 seconds each. If you upgrade to a 32MB card, you can extend your digital movies up to about 160 seconds. It's easy to flip through precise settings for each mode by using a wheel stacked beneath the mode dial.

A unique multiple-exposure setting lets you photograph images on top of one another to achieve interesting effects similar to what happens when you double-expose traditional film.

The FinePix 6900 comes with a lithium ion battery and a handy

Make a resolution

Take note of a few tricks that will save space on your camera's small and expensive media card.

Want to e-mail the photo or post it on a Web site? Choose a resolution of 640x480 pixels, the lowest resolution most digital cameras offer (some cameras go even lower, to 320x240 pixels). The smaller size of the file will enable it to download more quickly.

Want to print out pictures on your inkjet printer? For snapshots it's best to pick an intermediate resolution: 800x600 or 1024x768, for example. You may also have to play with settings in your photo editing software. In Photoshop, for instance, go to *Image* and then *Image size* to choose the shot's width and height, and the number of pixels per inch to print. Anything above 150ppi will allow good-quality photos on inkjet printers capable of 720x720dpi or higher. To attain standard photo sizes, you'll have to experiment with cropping. While resizing your photo, turn off your editing package's resampling feature so that you don't degrade picture quality by losing pixels. Once you've achieved the desired size, you can turn resampling back on.

Aren't sure how you'll be using a picture? If, for example, you want to e-mail a picture and frame a print of it, choose your camera's highest resolution and lowest compression. You can't enlarge a low-resolution shot and preserve quality, but you can always use an image editing program to chop down a high-resolution picture to a more manageable size later. Some cameras, such as Sony's DSC-S85 and DSC-P50, allow you to take both high-resolution and low-resolution versions of the image simultaneously.

If it's DIGITAL, if it's NEW,

...WE'VE GOT IT!

DX Series Digital Cameras

It's never been easier to transfer, print and share your images!

Kodak DX3600 Zoom Digital Camera

Capture great looking pictures and continuous video with this 6x zoom digital camera (2x Optical, 3x Digital). 2.2 Megapixel resolution for photo-realistic prints up to 8" x 10". Simply place your DX3600 into the Camera Dock, touch the button and your pictures are automatically transferred to your computer.

Kodak DX3900 Zoom Digital Camera

Great value high resolution digital camera with 3.1 Megapixel CCD, a 2x Optical/3x Digital zoom and a unique docking station that not only charges the battery in your camera but also transfers your images to your PC at the push of a button! Includes 8Mb Picture Card.

As digital imaging specialists we give you the BEST ADVICE and the BEST DEALS!

SHEPPARTON CAMERA VIDEO DIGITAL

SHEPPARTON
Cnr Fryers and Maude Street Mall
Phone: (03) 5821 3093 or (03) 5821 3855
email: sheppcam@mcmedia.com.au

Diamonds CAMERA, VIDEO & DIGITAL
Adelaide's No.1 Camera Store

ADELAIDE
165-169 Rundle Street
Phone: (08) 8224 0665
Free Call: 1800 155 067

PLAZA DIGITAL CAMERA • VIDEO

PERTH
Shop 28, Plaza Arcade
Phone: (08) 9325 4040
Digital Showroom: (08) 9325 2690

FOTO SUPPLIES

ALBURY
494 Dean Street
Phone: (02) 6021 6566
email: foto@albury.net.au

Paxtons CAMERA • VIDEO • DIGITAL
Sydney's Biggest Independent Camera Retailer!
Visit us at www.paxtons.com.au

SYDNEY
CITY 9299 2999 • BONDI JUNCTION 9389 6100
CHATSWOOD 9413 1144 • HORNSBY 9476 1363
NORTH RYDE 9870 8400 • PARRAMATTA 9635 9696

recharger. The battery lasted just 194 shots in our tests, however.

Despite the multitude of shortcut buttons and handy dials, we found the 6900 a bit difficult to use overall. The thick mode dial is hard to turn precisely, and both ways of zooming require you to hold the camera with two hands. The LCD and viewfinder can't be on at the same time; you must press a button each time to activate one or the other, which makes a quick peek at either impossible.

To change image quality and size settings, you must turn the stiff mode dial and use a menu. Nine combinations are available in all, and some are a chore to understand or remember. For instance, you can take 640x480 pictures only with a medium amount of compression.

Fujifilm FinePix 6900 Zoom

The upshot The FinePix 6900 impressed us with fine picture quality, but its battery life is short and the unit could be a lot easier to use.

MINOLTA DIMÂGE 7

The fine print Topping this camera's long list of high-end features are 5.2-megapixel imaging and a 7X optical zoom. You also get over a dozen dials and buttons for quick access to functions. You can zoom from 28mm to 200mm (35mm film camera equivalent) by twisting the large rubber grip on the lens barrel. Not only is it far faster than the rocker-button zoom you find on most digital cameras, this approach is more precise.

The photos our test model took were far from pleasing, however: images looked grainy, and test patterns were subject to marked moiré distortions. The

Minolta Dimâge 7

overall graininess in the viewfinder also complicates working with the camera's manual focus. Using and adjusting the flash is somewhat trickier than on run-of-the-mill digital cameras. To take a flash shot, you have to pop up the flash head manually. Moreover, the Dimâge 7 is one of the few cameras we've tested that makes you go into the menus to change the basic flash settings.

The auto-focus seems a bit sluggish compared to other cameras, and when you try to lock in on an object, it tends to swim back and forth too much. For example, the camera was unable to focus automatically on a dark birdfeeder against a bright sky background, forcing us to switch to manual focus. The Dimâge 7's price — nearly $3000 — may also give you pause.

You can shoot video clips with the Dimâge 7, but no sound to go with it — which is surprising for a camera in this price range. It's also missing a panorama mode. Plus, we managed only 169 shots on one charge of the camera's four rechargeable AA batteries.

The Dimâge earned an overall image-quality score of Good in our lab tests. It earned top scores for indoor shots with flash; shots of our test mannequin had pleasing skin tones, accurate exposures, and sharp details. On the other hand, it tended to mute bright colours. Our still-life shot yielded sharp details, accurate grey-scale tones, and few distortions such as colour banding or moiré. The still life and outdoor images tended to look a bit too dark, however.

The upshot Minolta's Dimâge 7 captures high-resolution images and comes with a long list of high-end features, but colour contrast results were mixed.

NIKON COOLPIX 995

The fine print Offering a wide array of controls and tools, the $1899 Nikon Coolpix 995 is for photography buffs. A white-balance bracketing feature gives you three versions of the same shot: one that uses the chosen setting, one with a reddish cast, and one with a bluish cast. Another control lets you adjust the saturation of a captured image. You can set sensitivity, activate manual focusing, and choose any exposure mode — including aperture priority, shutter priority, or full manual — without touching the menus (which can be hard to navigate).

A pop-up flash replaces the previous model's integrated flash. Nikon says the new location offers better flash coverage and reduces the chance of red-eye, but now you must flip a switch to activate the flash, which is inconvenient. The Coolpix 995 feels well made and will fit nicely in your hand, but it's bulky and heavy, weighing 390g (without batteries). Its size and features will overwhelm people looking for a light, simple digital camera.

The Coolpix 995 took an above-average 309 shots on one battery charge. The camera comes with a single rechargeable lithium ion battery and an external battery charger. Unfortunately, in a pinch, you can't swap in a quartet of ubiquitous AAs. Our outdoor shot was slightly underexposed, and some details in our still-life shot looked blurry, but the Coolpix 995 did a fine job of reproducing the colours and details of our mannequin.

The upshot The Coolpix 995 is a strong performer that may overwhelm novices.

Nikon Coolpix 995

Continued page 81

TED'S DIGITAL WORLD

Nikon

COOLPIX 885

NEW!

- 3.21 Megapixels
- 3x Optical & 4x Digital Zoom
- Macro Shooting
- 5-Area Multi AF
- Built-in 5-Mode Speedlight
- USB Interface
- 1.5" TFT LCD Monitor

Nikon

D1x DIGITAL SLR

- 5.47 Million Total Pixels
- Lens-Interchangeable Digital SLR
- 12-Bit Full-Colour Image
- Compact Flash Card
- 2" Polysilicon Colour LCD Monitor

Canon

POWERSHOT S30

NEW!

- 3.2 Megapixel CCD
- Canon 3x Optical Zoom
- 1.8" Colour LCD Screen
- Movie Mode with Sound
- CompactFlash Type II Slot

Canon

EOS D30

- 3.11m Pixel Digital SLR
- 1.8" LCD Screen
- Large Area CMOS Senser
- 3-point Autofocus
- USB Connection
- 13 Custom Functions

DIGITAL PRINTS

Photo Quality Digital Images

From 99¢ Each*

*Stores with Agfa E-Box only. 10x15cm Size

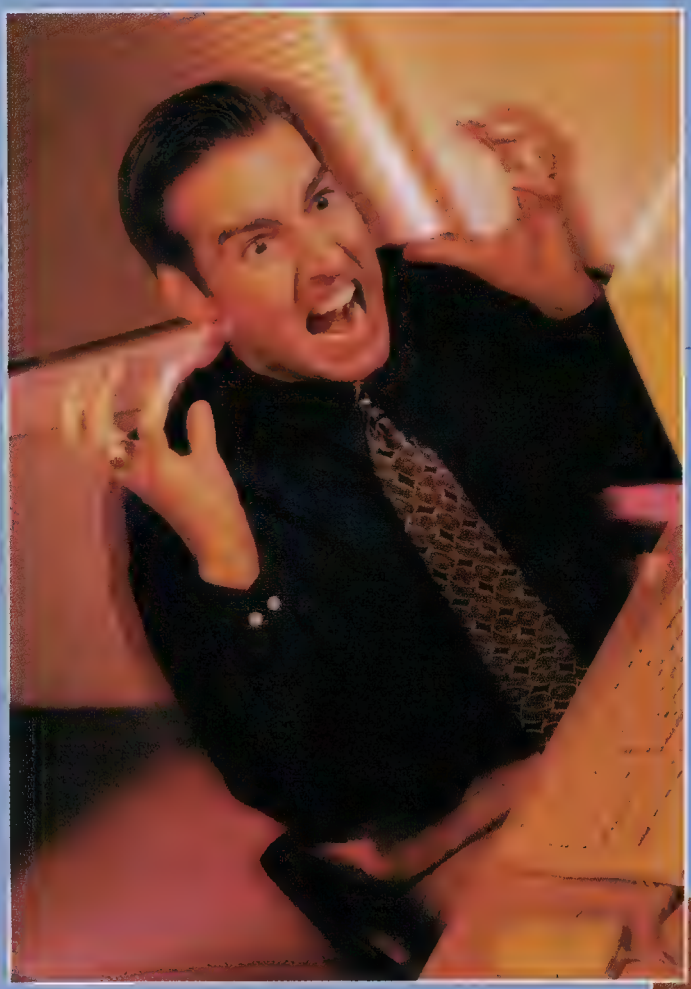
Memory Card

Photo Quality Print

Ted's Camera Stores

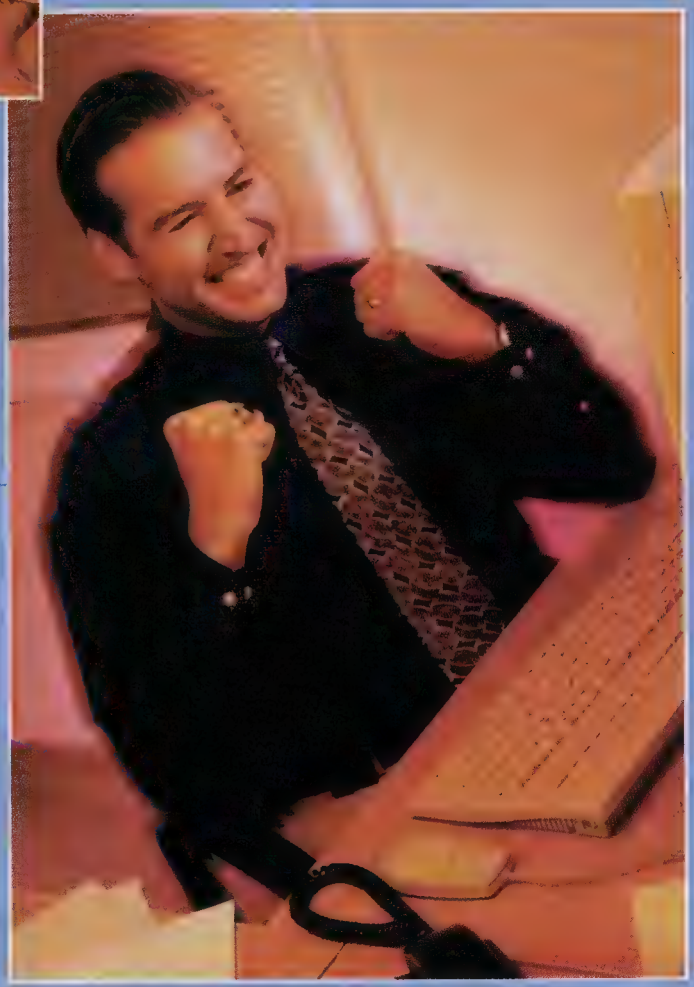
MELBOURNE • SYDNEY • BRISBANE • ADELAIDE • CANBERRA

Phone 1300 76 88 33 For Your Nearest Store • www.teds.com.au



Are you having problems getting the right IT training for your staff?

educateit
Australia's IT training gateway
www.educateit.com.au



educateit directs you to the solution:

- ✔ The right trainer
- ✔ The right course
- ✔ The right price

educateit
Australia's IT training gateway
www.educateit.com.au

Something for everyone

If 4 megapixels seems like overkill for what you want from a digital camera, there are loads of other options. Here are some examples:

HP PHOTOSMART 318

The 2.3-megapixel Photosmart 318 is a small camera that, at $728, won't break your budget. It's light at only 186g, and it's so simply designed that mastering it takes only a few minutes.

The Photosmart 318 offers only point-and-shoot photography, lacking even basic exposure compensation. Its three picture-quality settings, the typical flash options, and its self-timer mode account for the full extent of its flexibility. The lens is fixed, capable only of 2X digital zooming.

CANON POWERSHOT A20

The $999 PowerShot A20's nine picture settings — including resolutions up to 1600x1200 pixels — will serve most people's needs. Offering 3X optical zoom and 4.5X digital zoom, the camera smoothly brings the subject in close. If you hold down the shutter button in manual mode, you can take multiple shots as quickly as 2.5 images per second, up to the capacity of the memory card. You can also attach a wide-angle or telephoto converter, or a waterproof housing.

The PowerShot A20 is strictly a point-and-shoot model — it doesn't provide exposure controls beyond basic exposure compensation and white-balance settings, and you can't focus manually or take close-up shots in macro mode.

KODAK EASYSHARE DX3900 ZOOM

Kodak's EasyShare 3.1-megapixel $1200 DX3900 Zoom is ideal for beginners. It comes with a range of peripherals and turns out superbly colourful photographs. It has an 8MB CompactFlash card, which can store seven high-quality shots. It has a 2X optical and 3X digital zoom capability and can produce images at 2160x1440 pixels.

The camera sits in a docking station (for an extra $199) when tethered to a PC and the NiMH (nickel metal hydride) batteries can be charged when connected.

From page 78

OLYMPUS CAMEDIA C-4040 ZOOM

The fine print Based on our test shots, we awarded the $2299 Camedia C-4040 an overall image quality score of Good. On indoor shots with flash, the camera produced sharp, accurate photos, with warm skin tones. The exposure was just a hair on the dark side. The white balance was off in our indoor shot with daylight-balanced lights. Our neutral-grey background acquired a slight amber tint, and our model's skin was a patchwork of harsh highlights. On the other hand, in shots taken outdoors on a sunny day, the C-4040 produced finely detailed images with accurate highlights and shadows and little visible mottling in a solid blue sky.

Though the Camedia C-4040 includes nearly all the controls you'd expect in a high-end camera, setting its manual controls isn't as quick and easy as with models like the Minolta Dimâge 7 — both of which have spinning selector dials that let you change shutter speeds and apertures very quickly. Changing from shutter priority to aperture priority, for example, requires about five button presses. The same is true for changing resolution settings. When in aperture or shutter priority mode, you must pick a setting by repeatedly pressing the up and down navigation buttons.

Olympus Camedia C-4040 Zoom

Still, the menus are well organised, and the layout of the exposure settings is clean and efficient, with the aperture, shutter speed, and exposure value data listed together at the top of the LCD display. You can program a commonly used function — such as changing the resolution or exposure control (aperture, shutter, or manual) — into any of the four menu navigation buttons, and the camera offers true exposure lock.

On the downside, the settings for resolution and JPEG compression are not easy to decipher, and the zoom is a bit noisy.

Among the camera's useful extras are a panorama mode, an external-flash sync socket, simple white-balance calibration, a wireless remote shutter release, and Adobe Photoshop LE.

The upshot Fully-featured and relatively easy to use, the Camedia C-4040 is a nice fit for a business user seeking a simple yet flexible digital camera, or for serious snapshot-takers who don't like to fiddle frequently with camera controls.

SONY CYBER-SHOT DSC-S85

The fine print The $2099 Sony Cyber-shot DSC-S85 lasted a long time on one battery charge: an impressive 427 shots. This heavy but stylish camera includes some unusual extra features, one of which allows you to choose a companion action to occur at the same time you take a picture. For instance, you can set the camera to simultaneously take a high-quality TIFF photograph and to create a smaller one for e-mailing. The camera can capture brief movies with sound, too. Using the small-but-handy Jog Dial, you can set the aperture or the shutter speed, or you can flip through captured photos.

The shutter release has a hair trigger, however, and sometimes we inadvertently snapped a picture before the camera finished focusing. Some higher-end functions could also be more accessible. For example, you must visit two separate menus to set up auto-bracketing (a function that lets you take three shots in succession, one at the chosen exposure setting, and two more at settings above and below the chosen setting).

The Cyber-shot DSC-S85 took good pictures overall, though shots of our mannequin were a little oversaturated and underdetailed. Most of the DSC-S85's controls are located to the left of the LCD — this may not please right-handed photographers.

The upshot Despite an oversensitive shutter, the DSC-S85 is a reasonably priced, elegantly designed 4.1-megapixel camera.

Sony Cyber-shot DSC-S85

TOSHIBA PDR-M81

The fine print Great picture quality sets the $2099 4.2-megapixel Toshiba PDR-M81 apart from the crowd. It produced perfectly exposed outdoor shots and sharp detail in indoor scenes. Dedicated shortcut buttons let you quickly change the most frequently used settings. A nice time-saver: while you're shooting, you can expand some of the settings information that the camera displays on the LCD into mini-menus with a press of the thumbpad. The PDR-M81 took 325 shots before its batteries conked out — an impressive showing for a camera running on four alkaline AAs.

Though heavy on pixels, the PDR-M81 is light on features and manual controls, and it has a plain, boxy body with a small LCD screen. To turn on the camera, you must press and hold down the low-profile power button, which sits almost flush with the top — a tricky manoeuvre. Manual focusing is limited to two distance settings: 1m and 3m. In our tests of low-resolution, on-screen picture quality, this model scored in the bottom third.

Toshiba PDR-M81

The PDR-M81 zooms smoothly and quickly in both recording and playback modes. You can rotate captured images while displaying them on the LCD — a useful feature for viewing vertical shots. Selecting one of the three programmed settings is a breeze: just press one button to cycle through intuitive stars and coloured boxes displayed in the camera's status LCD. When you use this button, however, you can select only three of nine possible combinations of size and quality at any one time. To choose another pairing, you must go back into the menu.

The upshot This 4.2-megapixel camera creates great-looking photos but lacks advanced features. ■

Tracey Capen contributed to this story

Camera	Price	Pixels (millions)/ maximum resolution [1]	Bundled media capacity	Picture capacity at highest [2]/ lowest resolution	Focal range (35mm equivalent)/ optical zoom	Shutter speed range (seconds)	Photo output connections	Weight	Batteries	Contact
Canon PowerShot G2	$1999	4.0/2272x1704	32MB CompactFlash	14/337	34mm-102mm/3X	15-1/1000	USB, video	425g (excluding batteries)	Rechargeable lithium ion	www.canon.com.au 1800 816 001
Casio QV-4000	$1995	4.1/2240x1680	16MB CompactFlash	7/341	34mm-102mm/3X	60-1/1000	USB, video	355g (excluding batteries)	Two rechargeable AA	Distributor: Shriro www.shriro.com.au (02) 9370 9100
Fujifilm FinePix 6900 Zoom	$2599	3.34/2832x2128	16MB SmartMedia	1/275	35mm-210mm/6X	3-1/2000	USB, video	410g (excluding batteries)	One rechargeable lithium	Distributor: Hanimex www.hanimex.com.au (02) 9466 2600
Minolta Dimâge 7	$2999	5.0/2560x1920	16MB CompactFlash	1/22	28mm-200mm/7X	4-1/2000	USB	505g (excluding batteries)	Four AA or four AA NiMH	www.minolta.com.au 1300 728 606
Nikon Coolpix 995	$1899	3.34/2048x1536	16MB CompactFlash	10/42	38mm-152mm/4X	8-1/2300	USB, video	390g (excluding batteries)	One rechargeable lithium ion	Distributor: Maxwell Optical www.maxwell.com.au 1800 674 831
Olympus Camedia C-4040 Zoom	$2299	4.1/2272x1704	16MB SmartMedia	1/16	35mm-105mm/3X	4-1/800	USB, video	320g (excluding batteries)	Two 3V disposable lithium ion	Distributor: R. Gunz 1800 802 665
Sony Cyber-shot DSC-S85	$2099	4.1/2272x1704	16MB Memory Stick	8/240	34mm-102mm/3X	8-1/1000	USB, video	462g (with accessories)	Two rechargeable lithium ion	www.sony.com.au 1300 137 669
Toshiba PDR-M81	$2099	4.1/2400x1600	8MB SmartMedia	5/124	35mm-100mm/2.8X	1/2-1/1000	USB, video	241g (excluding batteries)	Four AA (Alkaline, NiMH or LiH)	Distributor: Castel Electronics www.castel.com.au (03) 9416 3688

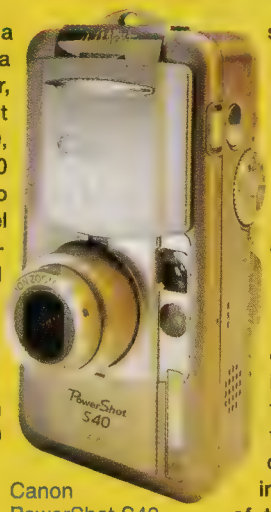
[1]Number represents maximum non-interpolated image resolution. Some manufacturers don't use entire CCD to capture an image; others interpolate using software to create a larger image.

[2]Capacity at highest non-interpolated JPEG resolution. Many cameras can take uncompressed TIFF images, though they are able to store fewer total pictures.

Pop 4 megapixels into your pocket

If you've been looking for a pocket-size digital camera that packs lots of pixel power, your search is over. Check out the Canon PowerShot S40, the Olympus Camedia C-40 Zoom, and the Pentax Optio 430. Each offers 4-megapixel resolution for stunning photos, both on screen and on 8x10in prints. But be prepared to pay a premium for these sharp-shooting gadgets.

The Camedia C-40 Zoom and the PowerShot S40 include features that most competitors lack, such as the ability to capture short video clips with audio. Both models are equipped with a built-in microphone that, for example, lets you record annotations for your video clips. In addition, the two cameras sport a tiny — and somewhat tinny — speaker that allows you to instantly review the sound quality. If it isn't to your liking, you can easily re-record the sound. The Optio 430, however, records only video.



Canon PowerShot S40

On the still-image front, all three cameras delivered nice-looking photographs overall. The Canon PowerShot produced the best colour of the group, creating wonderfully saturated, warm colours in almost every image. In pictures taken indoors, all three cameras tended to lose details in the dark areas of the photos' backgrounds.

In design, the Pentax Optio 430 is the clear winner, thanks to its svelte design and its attractive brushed metal finish. The Canon is a bit larger and bulkier than the other two. The Olympus is light and nicely square in shape, but a little chunky. The solidly-built Pentax is a bit wider but noticeably slimmer than the Olympus.

Both the PowerShot S40 and the Camedia C-40 Zoom have a sliding front panel cover that also functions as the camera's power switch. Although this feature does make the camera look slick, it forces you to be extra careful when moving the cover to turn off the camera, since the lens needs a bit of time to retract.

All three models' ease-of-use features include several on-camera buttons that offer convenient access to controls for such options as quickly reviewing pictures on the LCD screen. Image quality for the Canon and the Olympus was crisp, clear and colour-rich; also, both screens refreshed quickly when I thumbed from one image to the next. The Pentax's LCD screen, on the other hand, showed a blurred image for a second, and then quickly focused on a photo. Heads up: on all three cameras, some buttons — in combination with the on-screen menus — can be puzzling (and even frustrating) for first-time users. Read the manual carefully to ensure that you properly adjust the right settings.

The Canon and the Pentax include a rechargeable battery and a charger — also available free with the Olympus as an introductory offer.

Which camera is best? It's a tie between the Canon PowerShot S40 and the Olympus Camedia C-40 Zoom. Both deliver beautiful pictures and plenty of versatility. Possible tie-breaker? The Olympus wins on size.

Pentax Optio 430 (left) and Olympus Camedia C-40 Zoom

Summary	
This fully-featured 4-megapixel camera takes great looking photos and has a long battery life.	★★★★☆
A flexible, inexpensive camera for families or businesses.	★★★★☆
Impressed us with fine picture quality, but its battery life is short and the unit could be a lot easier to use.	★★★☆☆
Captures high-resolution images, but our colour contrast results were mixed.	★★★★☆
Offers a huge, sometimes intimidating list of features, including a swivel lens and custom buttons. Photos show fine detail.	★★★★☆
Fully-featured and relatively easy to use-- would suit users seeking a simple yet flexible digital camera.	★★★½☆
Well-designed and easy to use, and has extremely long battery life. Photos looked a bit oversaturated.	★★★★☆
Has good picture quality and simple menus and controls, but minimal manual control and non-rechargeable batteries.	★★★☆☆

CANON POWERSHOT S40

★★★½☆

If versatility and image quality are your top priorities, consider the slightly larger S40.

Price: $1799

URL: www.canon.com.au

OLYMPUS CAMEDIA C-40 ZOOM

★★★½☆

A small but slightly bulky camera that shoots handsome photos and short videos.

Price: $1799

Distributed by: R. Gunz 1800 802 665

PENTAX OPTIO 430

★★★☆☆

The best-looking compact camera here, but captures less-than-stellar snapshots.

Price: $1999

Distributed by: C.R. Kennedy (03) 9823 1555

URL: www.crkennedy.com.au

– Grace Aquino

HOME, SUB-$2000 & BUSINESS PCs best buys

HOME

	Make/model	Value rating	Performance rating	Configuration
HOME				
1	Acer Aspire EL	96.3	179 / 6861	Intel Pentium 4 2GHz, 1536MB SDRAM, 60GB hard drive, 64MB GeForce3 graphics adapter
2	Infocom Gaming Beast	87.1	183 / 8608	AMD Athlon 1.4GHz, 512MB SDRAM, 40GB hard drive, 64MB Leadtek GeForce3 graphics adapter
3	Packard Bell iXtreme 1500DVR	86.6	160 / 4535	Intel Pentium 4 1.5GHz, 256MB PC800 RDRAM, 60GB hard drive, 32MB GeForce2 MX graphics adapter with TV-out
4	CWS GamePro 9000	83.5	186 / 9032	AMD Athlon 1.4GHz, 512MB DDR SDRAM, 80GB hard drive, 64MB GeForce3 graphics adapter
5	Peripherals Plus P4 1.7GHz	83.4	181 / 6969	Intel Pentium 4 1.7GHz, 512MB SDRAM, 40GB hard drive, 64MB GeForce2 Ti graphics adapter with TV-out
6	Cougar Athlon GeForce3	82.9	197 / 8962	AMD Athlon 1.4GHz, 256MB SDRAM, 30GB hard drive, 64MB ASUS V8200 Deluxe GeForce3 graphics adapter
7	Microtech Senator 1400	82.1	196 / 9103	AMD Athlon 1.4GHz, 256MB SDRAM, 40GB hard drive, 64MB Leadtek GeForce3 graphics adapter
8	Dell Dimension 8200	80.9	160 / 6926	Intel Pentium 4 2GHz, 256MB PC800 RDRAM, 60GB hard drive, 64MB GeForce3 graphics adapter
9	Peripherals Plus Athlon 1.4GHz DDR	80.5	192 / 9000	AMD Athlon 1.4GHz, 256MB PC2100 DDR SDRAM, 40GB hard drive, 64MB Hercules GeForce3 graphics adapter

1 Acer Aspire EL

This machine ships with DVD-ROM and CD-RW drives as well as a vast 60GB of hard disk space, and the regular floppy drive has been superseded by an LS-240 drive. These drives consume four of the mini-tower's five drive bays, one hard drive space being vacant for future expansion. The 5.25in drives are held in place without tools and slide from their bays easily, although the cramped confines can make cable connections very frustrating.

The Aspire utilises an Intel 845 chipset-based motherboard whose dimensions are limited to carrying only three PCI slots, occupied by the sound card, modem and FireWire ports. Yes, the machine includes FireWire, which, coupled with the 64MB GeForce3 graphics adapter and the afore-mentioned storage facilities, makes the machine perfect for video editing. Acer has packed this machine with a colossal 1.5GB of SDRAM via three 512MB modules. The board has a maximum capacity of 3GB via its three DIMM slots.

This Aspire comes with the usual array of serial and parallel connections, as well as a 10/100 network port on its rear, and it has a total of four USB ports — two of which accompany the headphone and microphone jacks on the front of the case. A Sony Memory Stick slot is incorporated on the front panel, too, which is a bonus for people who own a Sony digital camera or music player. For convenience, the front panel contains a drop-down lid that can house six CDs.

For $3799, you really can't go wrong with this Windows XP-equipped system. Its behemoth specifications and its wealth of features make it the ideal solution for practically any home user, and a generous software bundle as well as a one-year RTB warranty are included.

PROS: Fully featured, 1.5GB of RAM, DVD, CD-RW, FireWire

CONS: Cramped enclosure, one-year warranty

2 Infocom Gaming Beast

This machine features an aluminium enclosure, which, while keeping the system extremely light, is also surprisingly rigid. It is configured with 512MB of RAM, and has a total memory capacity of 1.5GB. Storage capacity is very good, with a 40GB Seagate drive installed on one of the on-board RAID controller's ATA100 IDE channels.

Hardware isn't the only stand-out feature of this package, though, as the high-end graphics and sound cards of the configuration bring with them a large range of games and applications to entertain you straight away. Infocom gives you a DVD movie of your choice for free, which will properly show off the system's Cambridge DDT 2200 5.1 speaker system.

3 Packard Bell iXtreme 1500DVR

For multimedia enthusiasts, this machine packs a slew of the latest available components to make your hobby or profession come alive with convenience and ease. It is the first machine in

BY ELIAS PLASTIRAS

Extra features	Beginner rating	Enthusiast rating	Price (inc. GST)/ Warranty	Issue Reviewed	Vendor
17in Acer V771 monitor, 40x10x20 CD-RW drive, 16x DVD-ROM drive, LS240 disk drive, Altec Lansing ACS33 speakers, internal modem, 10/100 network adapter, SoundBlaster Live! sound card, FireWire, Memory Stick reader, Microsoft Works 6.0, Lotus SmartSuite Millennium, EA GamesPack, Windows XP Home	****	**	$3799 1 year RTB (next business day response)	Dec-01	Acer 1300 366 567 www.acer.com.au
17in Philips monitor, 40x10x16 CD-RW drive, 16x DVD-ROM drive, Cambridge DDT 2200 5.1 speaker system, internal 56Kbps modem, 10/100 network adapter, SoundBlaster Live! DE 5.1 sound card, free DVD movie, Windows XP Professional	**	****	$3990 2 years RTB	Sep-01; retested Dec-01	Infocom (02) 9261 3009 www.infocom.com.au
17in Packard Bell monitor, DVD-RW drive, speakers, internal 56Kbps modem, 10/100 network adapter, SoundBlaster Live! Value sound card, TV-tuner card, FireWire, Microsoft Word 2000, Ulead VideoStudio, PhotoExpress, FIFA 2000, Rally Championship, Rayman 2, 102 Dalmations, MDK2, Windows Me	*****	*****	$5399 1 year RTB	Jan-02	Packard Bell 1300 307 607 www.packardbell.com.au
17in ViewSonic E700 monitor, 40x16x10 CD-RW drive, 16x DVD-ROM drive, Altec Lansing ACS45.1 speakers, internal modem, SoundBlaster Live! sound card, Norton AntiVirus, Windows Me	*	*****	$3355 1 year parts/5 years labour RTB	Dec-01	CWS (02) 9519 2888 www.cwsydney.com.au
17in Samtron monitor, 40x16x10 CD-RW drive, 16x DVD-ROM drive, Altec Lansing AVS-300 speaker system, internal 56Kbps modem, 10/100 network adapter, SoundBlaster Live! Value sound card, Lotus SmartSuite Millennium, antivirus software, Windows XP Home	****	****	$2695 3 years on-site	Jan-02	Peripherals Plus 1800 007 587 www.perplus.com.au
19in Mitsubishi 19NF monitor, 32x10x12 CD-RW drive, 8x DVD-ROM drive, Altec Lansing ATP3 speakers, internal 56Kbps modem, 10/100 network adapter, SoundBlaster Live! DE 5.1 sound card, Windows 98SE	**	****	$4900 3 years RTB	Sep-01	Cougar (02) 6242 2777 www.cougar.com.au
17in Samsung monitor, 32x4x10 CD-RW drive, 16x DVD-ROM drive, Altec Lansing ACS54 speaker system, internal 56Kbps modem, 10/100 network adapter, SoundBlaster Live! Value sound card, Windows 98SE	**	****	$3299 3 years RTB	Oct-01	Microtech (02) 9648 1818 www.techbuy.com.au
19in Dell monitor, CD-RW drive, DVD-ROM drive, Altec Lansing ADA885 THX certified speakers, internal modem, 10/100 network adapter, Turtle Beach Santa Cruz DSP sound card, Microsoft Works 2001, Windows XP Home	*****	***	$4799 1 year on-site (next business day)	Jan-02	Dell 1300 303 175 www.dell.com.au
17in Samsung monitor, Pioneer 16x DVD-ROM drive, AOpen 32x12x10 CD-RW drive, Altec Lansing ACS33 speakers, 10/100 network adapter, SoundBlaster Live! Value sound card, Lotus SmartSuite Millennium, Windows Me	**	****	$2895 3 years on-site	Aug-01	Peripherals Plus 1800 007 587 www.perplus.com.au

LEGEND

PC WorldBench 2000

3DMark 2000

WHAT THE RATINGS MEAN

The Value Rating is the cumulative score achieved after the evaluation of the systems' performance, configuration, features, ease of setup and use, expandability, price, warranty, service and support. This score is how the Best Buys charts are ranked and it indicates how much value you are getting for your dollar. The Home, Business and Sub-$2000 PCs Performance Ratings comprise the PC WorldBench 2000 as well as the Madonion 3D Mark 2000 result.

These results are incorporated into the Value Rating. Previously, we also relied on SYSMark 2000 to gauge performance but, due to the release of Windows XP, we have ceased using this benchmark, as it does not run under this operating system; therefore, we have adjusted all previous value ratings that featured this test accordingly. In the upcoming months we will be tweaking our evaluation procedure to take into account the latest benchmarks in our arsenal (including the new SYSMark 2001) as well as incorporating the latest trends of the PC industry.

The Beginners Rating is an indicator of the ease of setup and use of the system. A Five Star Beginners Rating means that the system ships with a recovery CD, pre-installed software, a fold-out setup guide, colour-coded jacks, free telephone support and Internet support. The Enthusiast Rating is an indicator of the expandability and upgradeability of the system. A Five Star Enthusiast rating indicates that you can upgrade the motherboard, graphics adapter, memory and hard-disk drive, and that two free 3.5in bays and two free 5.25in bays are provided.

the Best Buys to come stocked with a DVD-RW drive and, through the use of the supplied MyDVD authoring and Ulead editing tools (among others), it allows you to transplant your home movies or crusty old video tapes onto 4.7GB rewritable DVD discs. These discs can then be played back on a conventional DVD player.

FireWire devices are accommodated with the inclusion of a FireWire PCI expansion card, and to get your old videos onto your computer, you can go through the installed TV-tuner card.

4 CWS GamePro 9000

This package puts out plenty of grunt thanks to its 1.4GHz Athlon CPU and 512MB of DDR SDRAM, and is primarily focused at the enthusiast and gamer. Unlike any of the other systems that have graced the Home chart, this machine is housed in a server-sized case that is more suitably rested on the floor than on a desk. Our review model came fitted with wheels, but they can be removed. This case has a total of eight drive bays, about four of which can be used for expansion. With so much freedom for expansion it's good to know that the power supply in this case has a beefy rating of 400W.

5 Peripherals Plus P4 1.7GHz

Running the Home version of Windows XP, this machine scored adequately in our benchmarks and is a good all-round system for the home user who needs to be productive as well as entertained. This machine ships with a DVD-ROM drive and GeForce2 Ti graphics adapter, enabling movie watching and relatively high-end game play.

For tinkerers and enthusiasts, the inside of the case features no fewer than seven drive bays, while the motherboard dishes up six PCI slots and three DIMM slots. Our review model came fitted with a single 512MB SDRAM module and had three of its afore-mentioned PCI slots free, although the one closest to the graphics adapter was slightly hindered by the large fan and heatsink on the card.

6 Cougar Athlon GeForce3

Although it features an older model AOpen ATX casing that lacks side-panel access (the cover is one piece and has to be wholly removed), on the inside this system contains more recent components that will easily handle today's productivity applications and resource-draining games. It is based on an ASUS A7V133 motherboard, and in it sits an AMD Athlon running at 1.4GHz.

It ships with a bundle of games courtesy of the high-end graphics and audio adapters. Although the hefty price tag of $4900 is perhaps more than the average enthusiast is willing to pay, the incorporated components are top-notch and gelled well to provide good performance scores under Windows 98SE.

7 Microtech Senator 1400

For $3299, the Senator is a premiere performer that has been well assembled and should last several years. It is based on an ASUS A7M266 motherboard and its processing power comes from an AMD Athlon running at 1.4GHz and a Leadtek GeForce3 graphics card featuring 64MB of DDR memory. As such, it is a great machine for the avid gamer and this was demonstrated in the Quake III timedemo 1 benchmark which, running at a resolution of 1024x768 with 16-bit colour depth, garnered 146fps.

8 Dell Dimension 8200

Beneath the stealthy black and grey exterior of the 8200 lies the backbone of what should be a long-lasting and highly productive system. You'll find a 2GHz Pentium 4 processor and 256MB of PC800 specification RDRAM — with the ability to expand, of course!

Packed with DVD-ROM and CD-RW drives as well as a 64MB GeForce3 graphics solution, this machine is great for gamers (the machine recorded 188fps in the Quake III timedemo 1 benchmark at a resolution of 1024x768 and 16-bit colour depth) and entertainment seekers. It ships with a good-looking 19in Trinitron monitor and solid set of Altec Lansing THX-certified speakers that comprises a sub-woofer and satellites.

9 Peripherals Plus Athlon 1.4GHz DDR

This machine's PC WorldBench 2000 score was a lot lower than expected (refer to the table) but, as you know, our reviews are about more than just performance — and, overall, for just under $2900 this package is superb from top to bottom thanks to an abundant configuration that will serve you well now and into the future.

It includes a software bundle comprised of Lotus SmartSuite as well as a few utility applications, and a service plan incorporating a three-year nationwide on-site warranty is part of the standard package.

SUB-$2000

1 e@Pc Dream Machine - Series 8

Suitable for gaming as well as productivity work, this is the first machine in the Sub-$2000 chart to crack the 30GB storage barrier, shipping with a massive 60GB hard disk. A 17in monitor with a viewable area of 15.7in is included, as is a set of speakers, plenty of RAM and a strong graphics adapter.

Optical drives are weak, though, as the machine does not include either a DVD-ROM drive or a CD-RW drive; instead, a 52x CD-ROM drive is installed. Extras are also not forthcoming. The high-end configuration means that essential components such as a modem had to be sacrificed. Software is non-existent, apart from the necessary driver discs that ship with the system. The keyboard that ships with the system is very light and uncomfortable to use. An optical mouse looks after pointing duties and, like many mice these days, it features a button designation for each finger.

Expansion is aided by four free drive bays and five free PCI slots, and the case is relatively easy to work on. The front panel needs to be popped off before side panel access can be obtained.

All up, this is a great machine for the speed seeker, and can be upgraded as needs change.

PROS: Powerful configuration
CONS: Poor keyboard, no software bundle

2 Peripherals Plus Pentium 4 1.5GHz

This relatively future-proof system has enough power to get you working, playing games and watching movies in pleasure.

It is based on an ASUS P4B motherboard, which features one of the new tiny 478-pin processor socket designs, along with Intel's 845 chipset and integrated audio. SDRAM is the memory technology implemented and one of the board's three slots is equipped with a single 512MB module. A maximum memory capacity of 3GB is boasted. This machine runs at a brisk 1.5GHz, but its benchmark scores were still way below that of comparable Athlon systems (refer to the table).

3 e@Pc Dream Machine - Series 7

This machine's black Elitegroup K7S5A motherboard creates a visually stunning building block that is evident once you remove the front and side panels of the case. On it, an SiS 735 chipset is used to communicate with the AMD Athlon 1.4GHz processor, and 256MB of DDR SDRAM, which is packed into two of the machine's four memory slots. Half of these slots are for regular SDRAM memory and you can only use one type at a time.

It's suited to pretty much any type of use, whether you want to play games, watch movies, be productive or do some research on the Internet — and its versatility can be enhanced by provision for future expansion.

4 Infocom Multimedia System

If you're on a $2000 budget and seek solidity, upgradeability and performance from a computer system, the Infocom Multimedia System should be right up your alley. It features a great set of input and output devices in the form of a Microsoft

It takes power ideas to create power products.

Our research and development team is behind all of these powerful innovations. And that's why we are proud to be one of the first to release and embrace new technologies.

MSI is a leader in computer mainboard and peripherals.

Our international depth and knowledge of new technologies provides our customers with new opportunities for ideas and tools to improve business. For more information visit www.msicomputer.com.au

The power of DDRAM is here!
MSI have full range of products, from ATX to mATX covering Intel® P4 and AMD Athlon xp.

Smart Key · Live · Live Update Series · D Bracket

For more information visit our website www.msicomputer.com.au

Also Technology
NSW/ACT Tel (02) 9519 4600
VIC/TAS Tel (03) 9560 3388
QLD/NT Tel (07) 3357 4300

Ingram Micro Australia
Tel 1300 65 3333
Fax 03 9545 3326

Tech Pacific
QLD/WA/SA
Tel (02) 9381 6384 or 9381 6254
NSW/VIC
Tel (02) 9381 6270 or 9381 6273

© Micro-Star International 2001. All brand names are registered trademarks of their respective owners.
These specifications are subject to change without notice.

845 Ultra-A
- support DDRAM
- support P4 socket 478 CPU
- Intel 845D chipset
- promise ATA133 (optional)
- promise Raid (optional)
- USB 2.0 (optional)

K7N420 Pro
- support DDRAM
- support AMD AthlonXP
- support upto 3Gb RAM
- Nvida Crash12+MCP-D
- onboard VGA and sound
- Dolby-digital SPDIF out
- TV-Out (optional)

645 Ultra
- support 333Mhz DDRAM
- support P4 socket 478 CPU
- SIS 645 chipset
- onboard sound
- 645 Ultra (MS-6547v1)

K7T266 Pro2-RU
- support DDRAM
- support AMD AthlonXP
- KT266A chipset
- Raid (optional)
- USB 2.0 (optional)

MSI™
Link to the Future

Intellimouse and keyboard, and comes with a good-looking 17in Acer monitor and a set of Altec Lansing speakers. Its 1.4GHz Athlon CPU and 512MB of SDRAM produced good scores in our benchmarks and its GeForce2 MX 400 graphics adapter obtained 86fps in the Quake III timedemo 1 benchmark at a resolution of 1024x768 and 16-bit quality. As you can see from this result, it is a great budget gaming machine.

5 CWS HomePro 3000

The HomePro 3000 system from CWS is a nifty little unit based on an Athlon 1.4GHz processor and is great for people looking for a budget gaming system or just an all-round low-cost unit. It features standard connectivity, and the inclusion of a network adapter means it can be implemented in an office environment.

The machine's full-sized Gigabyte motherboard contains five PCI slots as well as three DIMM slots, and our review model came fitted with two 256MB SDRAM modules.

The machine performed well in our tests (refer to the table), and in the Quake III timedemo 1 benchmark it scored 71fps at a resolution of 1024x768 and 16-bit colour depth.

6 SATO GamePC J-G50

This well-performing Athlon 1.4GHz-based system is suitable for productivity, entertainment and gaming tasks, and it even has a fair amount of spare real estate for future expansion.

It is a small system whose mini-tower case doesn't take up too much desk space. The rounded front panel incorporates a splash of green colouring, which makes it look quite nice. On the inside, the Shuttle AK31 motherboard is full sized and contains five PCI slots as well as four DIMM slots.

7 Peripherals Plus Duron 950

This Peripherals Plus machine was able to notch up great business performance scores — it will even provide you with adequate gaming capabilities thanks to its 32MB GeForce2 MX 200 graphics adapter.

As an overall package for the home, this PC is ideal. It's good bang for your buck and can be upgraded to meet your changing needs. Peripherals Plus presents the package well and even provides a plastic holder for all the discs and bits and pieces that accompany the system.

8 Beam Micro Systems AMD Performance

While the Beam features nothing too spectacular in terms of specifications when compared to some of the other systems on the chart, it will provide you with a more than decent system for everyday tasks and even a little bit of gaming. Its powerplant is a 1.2GHz Athlon CPU and it sits in an MSI K7T 266 Pro motherboard alongside 256MB of DDR SDRAM.

It performed up to par in our tests and its 32MB GeForce2 MX 200 graphics adapter even managed to muster 42fps in the Quake III timedemo 1 test at a resolution of 1024x768 with 16-bit colour depth.

9 Australia IT Bravura 1900 Series

This minimally-configured system has the potential to serve well anyone who requires plenty of CPU grunt and above-average graphics performance. It isn't fully featured by any stretch of the imagination, but this system can be updated adequately through its roomy housing and free motherboard slots.

It provides a great opportunity for future expandability and proved to be very fast in our 2D and 3D application performance tests. Its 300W ATX tower has eight total spaces for drives and its ASUS A7V133-C motherboard offers five total PCI and three DIMM slots.

10 Microtech Calais 900

This machine performed admirably in all our tests and proved to be a good all-round computer system; whether you're looking for a productivity or

	Make/model	Value rating	Performance rating	Configuration
SUB-$2000				
1	e@Pc Dream Machine - Series 8	66.0	197 / 7026	AMD Athlon 1.4GHz, 512MB SDRAM, 60GB hard drive, 32MB Suma Platinum GeForce2 GTS graphics adapter with TV-out
2	Peripherals Plus Pentium 4 1.5GHz	65.6	161 / 2586	Intel Pentium 4 1.5GHz, 512MB SDRAM, 30GB hard drive, 32MB GeForce2 MX graphics adapter
3	e@Pc Dream Machine - Series 7	65.3	201 / 3957	AMD Athlon 1.4GHz, 256MB DDR SDRAM, 30GB hard drive, 32MB GeForce2 MX 400 graphics adapter with TV-out
4	Infocom Multimedia System	64.8	190 / 7367	AMD Athlon 1.4GHz, 512MB SDRAM, 20GB hard drive, 64MB GeForce2 MX 400 graphics adapter with TV-out
5	CWS HomePro 3000	64.7	192 / 5207	AMD Athlon 1.4GHz, 512MB SDRAM, 30GB hard drive, 64MB GeForce2 MX 400 graphics adapter with TV-out
6	SATO GamePC J-G50	63.5	171 / 5027	AMD Athlon 1.4GHz, 128MB DDR SDRAM, 20GB hard drive, 32MB Daytona GeForce2 MX 400 graphics adapter with TV-out
7	Peripherals Plus Duron 950	60.5	149 / [illegible]	AMD Duron 950, 128MB SDRAM, 20GB hard drive, 32MB GeForce2 MX 200 graphics adapter
8	Beam Micro Systems AMD Performance	59.5	177 / [illegible]	AMD Athlon 1.2GHz, 256MB DDR SDRAM, 40GB hard drive, 32MB GeForce2 MX 200 graphics adapter with TV-out
9	Australia IT Bravura 1900 Series	59.0	177 / 8005	AMD Athlon 1.4GHz, 256MB SDRAM, 20GB hard drive, Sparkle 32MB GeForce2 GTS graphics adapter
10	Microtech Calais 900	57.5	149 / 3547	AMD Duron 900, 256MB SDRAM, 20GB hard drive, 64MB Hercules Prophet 4500 graphics adapter with TV-out

Extra features	Beginner rating	Enthusiast rating	Price (inc. GST)/ Warranty	Issue Reviewed	Vendor
17in Mirage monitor, 52x CD-ROM drive, speakers, integrated audio, Windows Me	**	****	$1999 5 years labour/ 2 years parts	Nov-01	e@Pc 1300 656 265 www.e-pc.com.au
17in Samtron monitor, 16x DVD-ROM drive, Logitech Soundman GI speakers, internal 56Kbps modem, 10/100 network adapter, integrated sound, Lotus SmartSuite Millennium, PC-Cillin antivirus, Windows Me	**	****	$1999 3 years on-site	Nov-01	Peripherals Plus 1800 007 587 www.perplus.com.au
17in Magview monitor, DVD-ROM drive, sub-woofer speaker system, internal 56Kbps modem riser, integrated 10/100 network adapter, integrated sound, PowerDVD software, Windows Me	**	****	$1999 5 years labour/ 2 years parts	Oct-01	e@Pc 1300 656 265 www.e-pc.com.au
17in Acer monitor, 16x DVD-ROM, Altec Lansing ACS22 speakers, internal modem, integrated sound, Vet Anti-Virus, Windows Me	**	****	$1995 2 years RTB	Jan-02	Infocom (02) 9261 3009 www.infocom.com.au
17in ViewSonic monitor, 16x DVD-ROM drive, speakers, internal modem, 10/100 network adapter, integrated sound, Norton AntiVirus, Windows Me	*	****	$1723 1 year parts/ 5 years labour RTB	Jan-02	CWS (02) 9519 2888 www.cwsydney.com.au
17in Magview monitor, 16x DVD-ROM drive, speakers, internal modem, dual mode web camera, integrated sound, PowerDVD software, Windows Me	**	****	$1999 2 years RTB	Dec-01	SATO (03) 9899 6333 www.satotech.com.au
17in Samsung monitor, 16x DVD-ROM drive, Altec Lansing ACS33 speakers, integrated sound, internal 56Kbps modem, Lotus SmartSuite Millennium, antivirus software, Windows Me	**	****	$1895 3 years on-site	Aug-01	Peripherals Plus 1800 007 587 www.perplus.com.au
17in Mitsubishi monitor, 52x CD-ROM drive, speakers, integrated sound, internal 56Kbps modem, Windows Me	*	*****	$1800 2 years RTB	Jan-02	Beam Micro Systems (02) 9648 3222 www.beam-micro.com
15in Samtron 55E monitor, 50x CD-ROM drive, Juster speakers, Creative Vibra sound card, Windows Me	*	****	$1665 2 years RTB	Sep-01	Australia IT (03) 9882 1811 www.australiait.com.au
17in Mitsubishi monitor, 16x DVD-ROM drive, Juster speaker system, internal 56Kbps modem, integrated sound, PowerDVD, Windows Me	*	****	$1799 3 years RTB	Oct-01	Microtech (02) 9648 1818 www.techbuy.com.au

LEGEND

PC WorldBench 2000

3DMark 2000

WHAT THE RATINGS MEAN

The Value Rating is the cumulative score achieved after the evaluation of the systems' performance, configuration, features, ease of setup and use, expandability, price, warranty, service and support. This score is how the Best Buys charts are ranked and it indicates how much value you are getting for your dollar. The Home, Business and Sub-$2000 PCs Performance Ratings comprise the PC WorldBench 2000 as well as the Madonion 3D Mark 2000 result.

These results are incorporated into the Value Rating. Previously, we also relied on SYSMark 2000 to gauge performance but, due to the release of Windows XP, we have ceased using this benchmark, as it does not run under this operating system; therefore, we have adjusted all previous value ratings that featured this test accordingly. In the upcoming months we will be tweaking our evaluation procedure to take into account the latest benchmarks in our arsenal (including the new SYSMark 2001) as well as incorporating the latest trends of the PC industry.

The Beginners Rating is an indicator of the ease of setup and use of the system. A Five Star Beginners Rating means that the system ships with a recovery CD, pre-installed software, a fold-out setup guide, colour-coded jacks, free telephone support and Internet support. The Enthusiast Rating is an indicator of the expandability and upgradeability of the system. A Five Star Enthusiast rating indicates that you can upgrade the motherboard, graphics adapter, memory and hard-disk drive, and that two free 3.5in bays and two free 5.25in bays are provided.

an entertainment unit, the Calais will handle office applications, DVD movies and games well. Audio is built into the motherboard and a set of Juster speakers delivers its sound output.

The graphics department features a Hercules Prophet 4500 adapter equipped with a Kyro II chip as well as 64MB of SDRAM. In our Quake III timedemo 1 test, it managed to surpass 74fps at a resolution setting of 1024x768 with 16-bit colour depth.

BUSINESS

1 Peripherals Plus Athlon MP 1900+

NEW Beneath the two-tone skin of the midi tower is a Tyan S2460 mainboard with AMD 760MP chipset housing the twin AMD Athlon MP 1900+ processors (Windows XP showed these to be running at 1592MHz), 1GB of registered DDR SDRAM as well as a 64MB DDR 3D Prophet GeForce3 Ti 500 card.

Three of the six PCI slots are populated by an AOpen 10/100 network adapter, a Dynalink 56Kbps V.90 modem and a Hercules Gamesurround XL Muse sound card, while the 1GB of memory only takes up two of the four available memory slots, which can house up to 3GB. Storage is provided by the immense 80GB Seagate Barracuda IV hard drive utilising an ATA100 interface, and removable storage is handled by the 40x24x10 Sony CD burner.

You can watch DVD movies on its 19in Samsung SyncMaster 955DF monitor via the separate Pioneer 8x DVD-ROM drive. Sound pumps out to the three-piece Altec Lansing AVS300 speaker system.

Unlike previous dual Athlon systems, this dual processor Athlon XP+ system was unable to produce a result from PC WorldBench 2000. In other benchmarks it performed much like a standard single processor machine with this configuration, but when preliminary tests were conducted using SYSMark 2001 (which appears to takes advantage of a second processor), the Athlon MP1900 returned a score of 211. Multimedia dabblers will be impressed by the performance from the GeForce3 graphics card, which returned 3DMark 2000 scores in excess of 9000 points.

Despite being penalised 14 per cent of its total evaluation score for not completing PC WorldBench 2000, this machine's remaining strengths still combined to make it the best value for money business system in the review. It is priced at $5595 and has a three-year on-site warranty.

PROS: Great performance, on-site warranty

CONS: Large money outlay

2 Peripherals Plus Athlon XP 1800+

NEW Geared towards the graphically inclined or multimedia user, this machine features top quality components and packs plenty of grunt. The cornerstone of the system is an ASUS A7Ve-266 motherboard and it boasts an AMD Athlon XP 1800+ processor in its CPU socket (Windows XP showed this to be running at 1160MHz), as well as 512MB of DDR SDRAM in one of its three DIMM slots (its maximum memory capacity is 3GB). The 64MB GeForce3 Titanium 500 adapter managed to whip all comers in the 3DMark 2000 benchmark, scoring an impressive 10671.

The machine comes fully-featured with DVD and CD-RW drives, and a modem is installed for Internet connectivity. Unfortunately, it doesn't ship with a network card as standard. There are three free PCI slots, so expansion is possible.

For storage, the machine employs a Seagate Barracuda drive that provides a gargantuan 80GB of storage. There is space for two more hard drives and one more CD-ROM-sized device in the system's solid midi-tower enclosure.

USB connectivity runs rampant throughout this PC, with two ports located on the front for ease and an additional four at the back. FireWire connectivity is lacking but, as previously stated, there is room to upgrade.

The machine is a space hog thanks to its large 19in Hyundai monitor, which flaunts 18in of viewable area, but professionals will appreciate the included BNC connections. A set of Altec Lansing speakers is also provided, comprising a sub-woofer and four satellites for surround sound. They pair up well with the installed Hercules sound card, which offers outputs for both front and rear channels.

For just over $4000, you also get a set of comfortable input peripherals, a copy of Lotus SmartSuite and an antivirus utility. A three-year on-site warranty, which is available nationwide, is also part of the deal.

PROS: Plentiful storage, on-site warranty, graphics performance

CONS: No network card, large footprint

	Make/model	Value rating	Performance rating	Configuration
BUSINESS				
1	Peripherals Plus Athlon MP 1900+	91.9	n/a 9985	Dual AMD Athlon MP 1900+, 1GB ECC registered DDR SDRAM, 80GB hard drive, 64MB Hercules 3D Prophet GeForce3 TI 500 graphics adapter
2	Peripherals Plus Athlon XP 1800+	91.6	196 10671	AMD Athlon XP 1800+, 512MB PC2100 DDR SDRAM, 80GB hard drive, 64MB Leadtek GeForce3 TI 500 graphics adapter
3	Peripherals Plus Athlon MP 1.2	88.0	220 5572	Dual AMD Athlon MP 1.2GHz, 1GHz registered DDR SDRAM, 40GB hard drive, 64MB Leadtek GeForce4 TDH graphics adapter
4	Acer Veriton 7200	82.5	219 7103	Intel Pentium 4 2GHz, 1GB SDRAM, 80GB hard drive, 64MB GeForce3 graphics card
5	Acer Veriton 7200	81.8	195 6879	Intel Pentium 4 1.7GHz, 1GB SDRAM, 40GB hard drive, 32MB GeForce2 GTS graphics adapter with TV-out
6	CWS BusinessPro 8000	81.1	233 5189	AMD Athlon 1.4GHz, 512MB SDRAM, 60GB hard drive, GeForce2 MX 400 graphics adapter with TV-out
7	SATO Dragon PC, J-D25	80.7	195 5750	AMD Athlon XP 1600+, 256MB PC2100 DDR SDRAM, 20GB hard drive, 64MB Daytona GeForce2 TI graphics adapter with TV-out
8	Infocom PIV Workstation	80.5	162 5003	Intel Pentium 4 1.6GHz, 512MB SDRAM, 20GB hard drive, 64MB GeForce2 MX 400 graphics adapter with TV-out
9	e@Pc Dominator - Series 8	80.3	187 8110	Intel Pentium 4 2GHz, 256MB RDRAM, 80GB hard drive, 32MB Suma Platinum GeForce2 GTS graphics adapter with TV-out
10	Peripherals Plus Athlon 1.3GHz	77.8	221 2318	AMD Athlon 1.3GHz, 256MB DDR SDRAM, 30GB hard drive, 64MB GeForce2 MX-400 graphics adapter

3 Peripherals Plus Athlon MP 1.2

For graphics rendering and design applications, the benefits of a dual processing system can be substantial — as can be the price. With this professional system, Peripherals Plus has provided a dual 1.2GHz Athlon MP platform for under $4800 that is fully featured and doesn't contain the bulkiness of a server or full-tower housing.

It packs 1GB of DDR SDRAM on its Tyan Tiger motherboard and can be expanded to 3GB via its four DIMM slots. DVD and CD-RW drives are installed, as is a 7200rpm hard drive with a capacity of 40GB.

Extra features	Beginner rating	Enthusiast rating	Price (inc. GST)/ Warranty	Issue Reviewed	Vendor
19in Samsung 955DF monitor, 40x24x10 CD-RW drive, Pioneer 16x DVD-ROM drive, 10/100 network adapter, internal 56Kbps modem, Hercules Gamesurround Muse XL sound card, Altec Lansing AVS-300 speakers, Lotus SmartSuite Millennium, antivirus software, Windows XP Professional	***	****	$5595 3 years on-site	NEW	Peripherals Plus 1800 007 587 www.perplus.com.au
19in Hyundai P910+ monitor, 40x24x10 CD-RW drive, Pioneer 16x DVD-ROM drive, internal 56Kbps modem, Hercules Gamesurround Muse XL sound card, Altec Lansing AVS-500 speakers, Lotus SmartSuite Millennium, antivirus software, Windows XP Professional	***	****	$4095 3 years on-site	NEW	Peripherals Plus 1800 007 587 www.perplus.com.au
19in Samsung 955DF monitor, 16x DVD-ROM drive, 40x10x16 CD-RW, 10/100 network adapter, internal 56Kbps modem, case lock, Creative SoundBlaster Live! Value sound card, Altec Lansing AVS300 speakers, Lotus SmartSuite Millennium, Norton AntiVirus, Windows XP Professional	***	****	$4795 3 years on-site	Dec-01	Peripherals Plus 1800 007 587 www.perplus.com.au
17in Acer V771 monitor, 16x DVD-ROM, 32x8x12 CD-RW drive, 10/100 network adapter, Wake-On-LAN, tamper switch, case lock, integrated sound, speakers, Intel LANDesk Client Manager 6.0, PC-Cillin, PC Doctor, Windows 2000	**	****	$3499 3 years/1 year on-site	Dec-01	Acer 1300 366 567 www.acer.com.au
17in Acer monitor, DVD-ROM drive, CD-RW drive, 10/100 network adapter, Wake-On-LAN, tamper switch, case lock, integrated sound, speakers, Intel LANDesk Client Manager 6.0, PC-Cillin, PC Doctor, Windows 2000	**	****	$2699 3 years/1 year on-site	Nov-01	Acer 1300 366 567 www.acer.com.au
17in Viewsonic monitor, 40x16x10 CD-RW drive, speakers, internal modem, 10/100 network adapter, integrated sound, Norton AntiVirus, Windows 2000	*	*****	$2222 1 year parts/ 5 years labour	NEW	CWS (02) 9519 2888 www.cwsydney.com.au
17in Magview monitor, 40x20x10 CD-RW drive, 10/100 network adapter, Wake-On-LAN, internal 56Kbps modem, integrated sound, speakers, headphones, E-BOX GSM card reader, dual mode web camera, antivirus software, Windows XP Home	**	****	$2499 2 years RTB	NEW	SATO (03) 9899 6333 www.satotech.com.au
17in Philips monitor with speaker pedestal, 32x10x16 CD-RW drive, 16x DVD-ROM drive, 10/100 network adapter, Wake-On-LAN, internal 56Kbps modem, integrated sound, VET Anti-Virus, Windows XP Professional	**	****	$2750 2 years RTB	Jan-02	Infocom (02) 9261 3009 www.infocom.com.au
17in Mirage monitor, 12x8x32 CD-RW drive, 10/100 network adapter, integrated audio, speakers, Windows Me	*	*****	$2999 5 years parts/ 2 years labour RTB	Nov-01	e@Pc 1300 656 265 www.e-pc.com.au
17in Samsung monitor, AOpen combination CD/DVD/CD-R/CD-RW 24x4x4x6 drive, Acer 10/100 network adapter, internal 56Kbps modem, Lotus SmartSuite Millennium, antivirus software, Norton Ghost, Windows 2000 with SP 1	**	****	$2595 3 years on-site	Jul-01	Peripherals Plus 1800 007 587 www.perplus.com.au

LEGEND

PC WorldBench 2000

3DMark 2000

WHAT THE RATINGS MEAN

The Value Rating is the cumulative score achieved after the evaluation of the systems' performance, configuration, features, ease of setup and use, expandability, price, warranty, service and support. This score is how the Best Buys charts are ranked and it indicates how much value you are getting for your dollar. The Home, Business and Sub-$2000 PCs Performance Ratings comprise the PC WorldBench 2000 as well as the Madonion 3D Mark 2000 result.

These results are incorporated into the Value Rating. Previously, we also relied on SYSMark 2000 to gauge performance but, due to the release of Windows XP, we have ceased using this benchmark, as it does not run under this operating system; therefore, we have adjusted all previous value ratings that featured this test accordingly. In the upcoming months we will be tweaking our evaluation procedure to take into account the latest benchmarks in our arsenal (including the new SYSMark 2001) as well as incorporating the latest trends of the PC industry.

The Beginners Rating is an indicator of the ease of setup and use of the system. A Five Star Beginners Rating means that the system ships with a recovery CD, pre-installed software, a fold-out setup guide, colour-coded jacks, free telephone support and Internet support. The Enthusiast Rating is an indicator of the expandability and upgradeability of the system. A Five Star Enthusiast rating indicates that you can upgrade the motherboard, graphics adapter, memory and hard-disk drive, and that two free 3.5in bays and two free 5.25in bays are provided.

4 Acer Veriton 7200

While incorporating many of the features that we are accustomed to seeing from previous Veriton 7200 boxes, this Acer system boasts a performance jolt courtesy of Intel's new 2GHz CPU.

It contains a vast feature set and is very generous in connectivity and storage. A 5400rpm ATA100 Seagate hard drive is installed and has a total capacity of 80GB. A CD ReWriter is installed and DVDs can be read by the 16x Acer ROM drive.

Computer security features include the use of an external case lock facility that can be used for a cable or padlock facility, and an active tamper switch is used to raise the alarm when the case is physically infiltrated via its side panel.

5 Acer Veriton 7200

This machine performed admirably in our tests and contains a fully-featured configuration powerful enough to run any office applications with ease. For networking, a 10/100 adapter is integrated on the motherboard and management tools include Intel LANDesk Client Manager 6.0.

For security, the case contains a padlock or cable facility at its rear and an interior tamper switch, albeit disabled. A three-year (one-year on-site) warranty as well as phone support are included with the package.

6 CWS BusinessPro 8000

NEW What this system lacks in aesthetic appeal it makes up for by being reliable, well performing and expandable — perfect for the power user who doesn't want to spend a lot of money. It's built on a Gigabyte 72XH motherboard and features an AMD Athlon

1.4GHz CPU and 512MB of SDRAM, and currently holds the fastest PC WorldBench 2000 score on the chart. Its server box enclosure is best suited to a floor position due to its size.

There are only three free usable CD-ROM bays and only one free hard drive bay. Hard drive installation is a little tedious: the whole 3.5in bay needs to be removed before you can actually add or remove a drive. In this model, a 60GB 7200rpm Seagate Barracuda drive takes care of the storage, and an Iomega CD-RW is also installed.

The enclosure is roomy and all components except the hard drive can be accessed easily. CWS has installed two extra case fans at the rear to help keep it cool.

There are three DIMM slots and five PCI slots for expansion, and connectivity is standard. The machine features on-board sound and contains both a modem and a network adapter. Its graphics department is a little weak, shipping with a GeForce2 MX 400 adapter, but, considering the machine's price range and its corporate usage, this should be more than adequate.

The usability of the system is good thanks to the comfortable multimedia keyboard and Microsoft Intellimouse, but the case lacks aids such as front-loading ports. A set of speakers is supplied, as is a 17in ViewSonic monitor. All up, for $2222 this system is well worth it if you're looking for solid performance and the ability to expand.

PROS: Inexpensive, good performance, plentiful storage, expandable

CONS: Large footprint, no front-loading ports

7 SATO Dragon PC, J-D25

NEW The Dragon PC, J-D25 is based on a SOYO SY-K7V Dragon Plus motherboard utilising the popular VIA KT266 chipset that supports the 256MB of DDR memory shipping standard on this system. Like many of our business PCs, this one uses the more cost-effective AMD CPU, in this instance the XP 1600+, which Windows XP Home detected as running at 1.4GHz.

Housed in the midi-tower case is the 20GB Quantum Fireball hard disk, a 64MB DDR Daytona GeForce2 Ti card with TV-out, 40x20x10 CD burner and an interesting device called an E-Box. This fits into one of the 3.5in bays and contains a GSM SIM Card reader and two USB ports. The SIM card reader allows you to insert the SIM card from your GSM phone into the slot via the supplied plastic caddy card and then download your address book to the computer via the proprietary software provided on the SOYO motherboard CD.

Other extras not normally found in business systems include six-channel audio, provided via the onboard CMI 8738 chipset that also supports the optical and coaxial SPDIF ports. Cooling within the chassis is via a fixed extraction fan located below the power supply, supplementing the work done by the fans and heatsinks on the CPU and chipset.

The Dragon PC includes a 56Kbps internal modem and a 10/100 network interface card with Wake-On-LAN.

The system ships with a 17in Magview flat screen monitor, optical mouse, three-way speaker system with sub-woofer and a bunch of software including Nero Burning ROM and Norton AntiVirus 2001. Our benchmarks showed the Dragon PC performing similarly to its peers (refer to table). Priced at $2499 with a two-year RTB warranty, this feature-packed system is an enticing proposition.

PROS: Inexpensive, feature packed

CONS: Hard drive is small by today's standards

8 Infocom PIV Workstation

As a fully-featured business system, this Infocom workstation should pretty much take care of all your needs. It's definitely quick enough, and its (disappointing) benchmark score in PC WorldBench 2000 was on par with other similar Pentium 4 systems we have seen. The installed CD-RW drive will let you easily back up important work without going to a network drive. It runs Windows XP Professional as its preferred operating system and, as such, features good security options for users as well as files.

Our test machine came fitted with 512MB of SDRAM and the maximum capacity of the board is 1.5GB through its three DIMM slots.

9 e@Pc Dominator - Series 8

As you can see from the benchmark results (refer to the table), even at 2GHz this Pentium 4 is unable to outperform Athlons in our 2D application tests, even while running at slower speeds. The machine did shine in 3DMark 2000, though, where it was able to achieve a score over 8000. Its favoured operating system is Windows Me, and the machine would have performed even better had Windows 2000 been installed.

Storage is plentiful due to the inclusion of an 80GB hard drive and a CD ReWriter. Expansion options are massive, as the machine's mid-tower casing contains no fewer than six free 3.5in bays and two free 5.25in bays.

10 Peripherals Plus Athlon 1.3GHz

If you're in business and you're looking for workstations that are reliable, fully featured and well supported, then you will be doing yourself a favour by visiting Peripherals Plus and checking out its 1.3GHz Athlon-equipped corporate machine. It has all the bells and whistles required by the workplace — fast and reliable performance, plentiful storage capacity and sound capabilities. For $2595 you will also get a three-year on-site warranty service that is valid nationwide. ■

YOU CAN HAVE IT ALL!

MARKET PHILOSOPHY

At e@Pc we know the market is shifting from the computer illiterate market to the evolving literate market. This means consumers aren't fooled by jargon, know value when they see it, and demand the highest quality PCs available, with only the best brand name components and warranties that stand by the product.

You get it all at e@Pc.

NO RISK WARRANTY*

*An Option With Every Purchase**

5 Year Labour and 2 Years Parts-
Fully Insured Warranty*
30 Day money Back Guarantee*,
Upgrade Up Cover*
48 Hour Guaranteed Repair*

ANNIHILATOR

"Featuring powerful performance ,plentiful connectivity and a wealth of storage, this system is ideal for the small office that has diverse needs ranging from standard office productivity to multimedia endeavours".
PC World- October 2001.

- Athlon 1800 XP
- 1024Mb Pc133 SD RAM
- 80Gig HDD, ATA 100
- 32x8x4 CD Burner
- 64Mb 2D/3D Graphics Acc.
- 19" High -res Monitor, .27dpi
- 128 Voice 3D Sound
- Multimedia Speakers
- Midi ATX Chasis
- 56K Modem, V90
- X-Windows
- Office Suite
- 5 Years Labour Warranty
- 2 Years Parts Warranty

RRP ~~$2924~~ **$2249*** FLEXIRENT $20 A WEEK#

DREAM MACHINE

"At e@Pc, when you fork out $1999 for a computer, that system ends up being significantly faster then machines costing significantly more".
PC World- October 2001.

pc world BEST BUYS

- Athlon 1600 XP
- 256Mb DDR SDRAM
- 30Gig HDD ATA 100
- 32MB GeForce 2 MX400, Graphics adaptor with TV-out
- 17" MagView Monitor
- Subwoofer Speakers
- 56K Modem, V90
- 10/100 network adaptor
- 16xDVD-ROM Drive or 32x8x4 CD-RW
- 128 Voice 3D Sound
- Power DVD Software
- MS Windows XP
- 5 Years Labour Warranty
- 2 Years Parts Warranty

RRP ~~$2599~~ **$1999*** FLEXIRENT $17 A WEEK#

ROCKET SERIES 6.1

"If you are looking for a new machine at the moment be it for gaming or showing off or productivity or work purposes you probably won't find better value for money anywhere else".
PC World- November 2001.

pc world BEST BUYS

- Athlon 1500 XP
- 256Mb SD RAM
- 30Gig 7200 RPM HDD, ATA 100
- 32Mb GeForce 2 MX Graphics
- 16xDVD-ROM or 32x8x4 CD-RW
- Midi Tower Case
- 17" Velta Monitor
- Multimedia Keyboard
- Optical Mouse
- Flat Panel Speakers
- Integrated Sound
- Software DVD Player
- MS Windows XP
- 5 Years Labour Warranty
- 2 Years Parts Warranty

RRP ~~$2404~~ **$1849*** FLEXIRENT $15 A WEEK#

EXPLORER BOOK PRO

- 1.2Ghz Intel Pentium III
- 512Mb RAM
- 20Gig Ultra-DMA
- 24xCD ROM
- 14.1 TFT
- 1.44 FDD
- 64Mb 2D/3D Graphics
- PCI 3D Audio Support
- Li-Ion Battery Pack
- Touch Pad,
- 2 mouse buttons
- MS Windows XP
- 1 Year Warranty

RRP ~~$3769~~ **$2899*** FLEXIRENT $24 A WEEK#

NETWORK e-SERVER

- *Speed up network*
- *Limit accesss to critical data*
- *Store all company files securely in one place*
- *Share all internet connection through the office*

- ***1.5 Ghz Pentium 4 CPU***
- ***Mini Server Chasis***
- ***10 Drive Bays***
- ***1.5GIG SD RAM***
- ***200GIG HDD Raid 0,1 Array***
- 1.44 FDD
- 52x CD ROM
- 15" Monitor
- 5 Yrs Labour Warranty
- 2 Yrs Parts Warranty

RRP ~~$4159~~ **$3199*** FLEXIRENT $26 A WEEK#

DOMINATOR

- 1.6Ghz Intel Pentium 4
- 256Mb SD RAM
- 40Gig ATA 100 IDE HDD
- 52xCD ROM
- 1.44 Panasonic FDD
- 32Mb 2D/3D Graphics
- 17" Monitor, .27dpi
- Multimedia Speakers
- Midi Tower Deluxe
- Keyboard and Mouse
- X-Windows
- Office Suite
- 5 Years Labour Warranty
- 2 Years Parts Warranty

RRP ~~$2274~~ **$1749*** FLEXIRENT $15 A WEEK#

www.e-pc.com.au

24 MONTHS INTEREST FREE TERMS AVAILABLE*

AUSTRALIA WIDE DELIVERY

1300 65 62 65

epc

Offers Valid Until January 31st, 2002

*EACE: e@Pc NORMAL TERMS AND CONDITIONS APPLY AND ARE AVAILABLE ON REQUEST. PRICES SPECIFICATIONS AND AVAILABILITY SUBJECT TO CHANGE WITHOUT NOTICE. DELIVERY CHARGES ADDITIONAL. CASH OR BANK CHEQUE ONLY AT ADVERTISED PRICES. PICTURES FOR ILLUSTRATIVE PURPOSES ONLY. ALL LOGOS TRADEMARKS AND PRODUCT NAMES ARE THE PROPERTY OF THEIR RESPECTIVE OWNERS. INTEREST FREE TERMS ONLY AVAILABLE AT FULL RECOMMENDED RETAIL PRICES. FEES/OR CHARGES MAY APPLY. PRICES INCLUDE GST. # FLEXIRENT ON A 4 YEAR CONTRACT. NO RISK WARRANTY AS DESCRIBED ABOVE IS AN OPTIONAL EXTRA.

NOTEBOOKS best buys

OVER $6000

1 IBM ThinkPad A30p

NEW The A series of ThinkPad notebooks has been designed as desktop PC replacements. This is IBM's attempt to provide an affordable alternative to the desktop and at the time of testing the three notebooks in the series ranged in price from $3799 to $6999 for this model.

Configuration is impressive, starting with the 1.2GHz Intel Pentium III-M processor that works in conjunction with 128MB of RAM, a huge 48GB hard disk and the impressive 32MB ATI Radeon Mobility graphics chip. The result is scorching scores of 136 and 105 in SYSMark 2001 and PC WorldBench 4, respectively. The 32MB ATI Radeon returned a 3DMark2001 score of 1979 — the highest 3D result of all the new notebooks tested this month.

The form factor of the notebook incorporates two special bays that IBM calls the UltraBay and UltraBay2000, allowing you to option up your system with goodies such as numeric keypads, LS-240 SuperDisks and 250MB Zip drives. A combination DVD/CD burner is a standard device on this A30p, but is optional for the rest of the A series.

The screen has a 15in diameter and displays beautifully at 1600x1200 pixels. IBM's ThinkLight illuminates the ample keyboard. As well as the standard buttons, the keyboard includes six one-touch launch buttons plus volume and mute controls — but IBM still refuses to include a Windows key on its keyboards. Connectivity is excellent: our review model contained modem, NIC, FireWire and USB ports as well as built-in Bluetooth and Wi-Fi.

As a complete package, the A30p is well built, versatile, robust and a leading performer.

PROS: Performance, built-in connectivity features

CONS: Definitely a desktop replacement with a weight of 3.8kg (combined with power adapter)

	Make/model	Value rating	Performance rating	Configuration
OVER $6000				
1	IBM ThinkPad A30p	64	136	Intel Pentium III-M 1.2GHz, 128MB RAM, 48GB HDD, 32MB ATI Radeon Mobility graphics controller, 15in active TFT display
2	Dell Latitude C400	61	102, 121, 2308	Intel Pentium III-M 1.2GHz, 128MB RAM, 10GB HDD, Intel 830M graphics chipset (32MB max. shared with main memory), 12.1in active TFT display
3	Toshiba Tecra 9000	56	98, 120	Intel Pentium III-M 1066, 256MB RAM, 30GB HDD, 16MB SuperSavage IXC graphics controller, 14.1in active TFT display
4	IBM ThinkPad T23	55	97, 130	Intel Pentium III-M 1.2GHz, 128MB RAM, 48GB HDD, 16MB S3 SuperSavage IXC, 14.1in active TFT display
$3001-$6000				
1	Dell Latitude C810	62	106	Intel Pentium III-M 1.13GHz, 128MB RAM, 10GB HDD, 16MB NVIDIA GeForce2 Go graphics controller, 15in active TFT display
2	Compaq Presario 1700	59	124	Intel Pentium III-M 1066, 256MB RAM, 30GB HDD, 8MB ATI Radeon Mobility M6 graphics controller, 14.1in active TFT display
3	Toshiba Satellite 3000	54	76, 120, 4331	Intel Pentium III 850, 64MB RAM, 15GB HDD, 16MB NVIDIA GeForce2 Go graphics controller, 14.1in active TFT display
4	Toshiba Portege 4000	51	75, 69, 728	Intel Pentium III 750, 128MB RAM, 20GB HDD, 16MB Trident CyberBlade XP graphics controller, 12.1in active TFT display
5	Sony Vaio FX990	49	96	Intel Pentium III 1GHz, 128MB RAM, 20GB HDD, Intel 82815 graphics chipset (11MB max shared with main memory), 15in active TFT display
5	Toshiba Satellite 5000	49	81	Intel Pentium III 1.1GHz, 128MB RAM, 20GB HDD, 16MB NVIDIA GeForce2 Go graphics controller, 15in active TFT display
SUB-$3000				
1	ASUS M1	44	84	Intel Pentium III 850, 192MB RAM, 20GB HDD, Intel 82815 graphics chipset (11MB shared max. with main memory), 14.1in active TFT display
2	ASUS A1300	42	65, 51	Intel Celeron 800, 192MB RAM, 20GB HDD, SiS 630 graphics chipset (64MB max. shared with main memory), 13.1in active TFT display
3	Optima Dynamis A1300DJ	41	81	Intel Pentium III 850, 256MB RAM, 10GB HDD, SiS 630 graphics chipset (64MB max. shared with main memory), 13.3 active TFT display
3	Pioneer SOHO Notebook	41	81	Intel Celeron 1.2GHz, 256MB RAM, 10GB HDD, SiS 630 graphics chipset (64MB max. shared with main memory), 13.3in active TFT display
4	IBM ThinkPad R30	38	67, 60, 582	Intel Celeron 900, 128MB RAM, 10GB HDD, 8MB Trident CyberBlade graphics controller, 13.3in active TFT display
5	Toshiba Satellite 1800	35	120, 86, $107	Intel Pentium III 850, 64MB RAM, 15GB HDD, 8MB Trident CyberBlade Ai1graphics controller, 13.1in active TFT display

BY DANNY ALLEN

Extra features	Weight kg	Tested battery life (mins)	GST Price/ Warranty	Issue Reviewed	Vendor
4x4x24x6x CD-RW/DVD-ROM combo drive, 2 USB ports, integrated 56Kbps modem and 802.11b wireless LAN, Ethernet, ThinkLight, UltraPort, TV-out, VGA-out	3.8	72	$6999 3 years	NEW	IBM 1800 289 426 www.ibm.com/au/thinkpad
External 24x CD-ROM and 3.5in floppy drives, 1 USB, integrated 56kbps modem and Ethernet, touch pad and touchpoint cursor control, leather carry case	2.3	110	$6085 3 years	NEW	Dell 1300 303 175 www.dell.com.au
8x4x24x8x CD-R/RW/DVD-ROM combo drive, 2 USB ports, integrated 56Kbps modem, Ethernet, Wi-Fi and Bluetooth, SD slot, TV-out, FireWire	3	75	$8030 3 years	Jan-02	Toshiba 1800 021 100 www.isd.toshiba.com.au
4x4x24x6x CD-RW/DVD-ROM combo drive, 2 USB ports, integrated 56Kbps modem and 802.11b wireless LAN, Ethernet, ThinkLight, UltraPort, VGA-out	3	76	$7199 3 years	Oct-01; retested Jan-02	IBM 1800 289 426 www.ibm.com/au/thinkpad
8x4x24 CD-R/RW drive, SmartMedia slot, 2 USB ports, FireWire, S-Video TV-out, Ethernet, 56Kbps modem, 3.5in floppy drive	3.9	140	$5470 3 years	Dec-01; retested Jan-02	Dell 1300 303 175 www.dell.com.au
4x4x24x8x CD-RW/DVD-ROM combo drive, 2 USB ports, integrated 56Kbps modem, Ethernet, TV-out, executive leather carry case	3.6	98	$4999 1 year	NEW	Compaq 1300 305 015 www.compaq.com.au
8x DVD-ROM drive, SmartMedia slot, 3 USB ports, FireWire, S-Video TV-out, Ethernet, 56Kbps modem, 3.5in floppy drive	3.3	118	$3245 1 year	Oct-01; retested Jan-02	Toshiba 1800 021 100 www.isd.toshiba.com.au
8x DVD-ROM drive, Secure Data media slot, 2 USB ports, Ethernet, 56Kbps modem, external 3.5in floppy drive, integrated 802.11b, integrated Bluetooth aerial	2.2	125	$5032 3 years	Dec-01; retested Jan-02	Toshiba 1800 021 100 www.isd.toshiba.com.au
8x4x24x8x CD-R/RW/DVD-ROM combo drive, removable 3.5in floppy drive, 2 USB ports, integrated 56Kbps modem, Ethernet, FireWire, VGA-out	3.7	90	$4899 1 year	NEW	Sony Australia 1300 138 246 www.sonystyle.com.au
8x DVD-ROM drive, integrated Harmon Kardon stereo speakers with sub woofer, Secure Data media slot, 3 USB ports, Ethernet, 56Kbps modem, external 3.5in floppy drive, integrated 802.11b, integrated Bluetooth aerial	3.6	78	$5499 1 year	NEW	Toshiba 1800 021 100 www.isd.toshiba.com.au
8x4x24 CD-R/RW drive, 1 USB port, FireWire, Ethernet, 56Kbps modem, carry bag	2.8	107	$2970 2 years	Jan-02	Altech Computers (02) 9748 2233 www.altech.com.au
8x DVD-ROM, 2 USB ports, TV-out, 56Kbps modem, Ethernet, autonomous CD player capability, carry bag	3.4	105	$2380 1 year	Jan-02	Achieva Technology Australia (02) 9742 3288 www.achieva.com.au
8x DVD-ROM, 2 USB ports, 3.5in floppy drive, TV-out, 56Kbps modem, Ethernet, carry bag	3.5	86	$2999 1 year	NEW	Optima (02) 9475 2777 www.optima.com.au
24x CD-ROM, 2 USB ports, TV-out, Ethernet, 56Kbps modem, FireWire, carry bag	3.5	85	$2399 1 year	NEW	Pioneer Computers Australia (02) 9690 2888 www.pioneercomputers.com.au
24x CD-ROM, 2 USB ports, TV-out, Ethernet, 56Kbps modem, ThinkLight	3.2	113	$2599 1 year	Jan-02	IBM 1800 289 426 www.ibm.com/au/thinkpad
8x DVD-ROM drive, 2 USB ports, TV-out, Ethernet, 56Kbps modem, dedicated CD/DVD controls	3.4	95	$2950 1 year	Jan-02	Toshiba 1800 021 100 www.isd.toshiba.com.au

2 Dell Latitude C400

NEW Proving that good things come in small packages, the Dell Latitude C400 packs quite a performance punch into its lightweight (2.3kg with power supply) metallic-grey chassis housing a 12.1in active TFT display.

Its Intel Pentium III-M 1.2GHz processor coupled with 128MB of RAM achieved a PC WorldBench 4 score of 102 and a SYSMark 2001 score of 121 under Windows 2000. 3D duties are handled by the Intel 830M graphics chipset, which is able to share a maximum of 32MB with the

LEGEND

- PC WorldBench 4
- PC WorldBench 2000
- SYSMark 2001
- SYSMark 2000
- 3DMark 2001
- 3DMark 2000
- 3DMark 99 Max

HOW WE EVALUATE NOTEBOOKS

As of the January 2002 issue of PC World, we are using a new evaluation process, incorporating updated benchmarks that reflect the changing market and a real world approach to notebook use. The new evaluation is broken into four differently weighted categories. The categories and their weightings are as follows:

- **Recommended Retail Price including GST:** 20%
- **Performance:** 20%
- **Features and Capabilities:** 45%
- **Tested Battery Life:** 15%

RRP + GST These prices are evaluated on a weighted sliding scale. The higher the price, the lower the score. As there are now three categories, there is a sliding scale for each one.

PERFORMANCE This is divided into two categories, 2D and 3D. The 2D scores, which make up to 14 of the total 20%, are weighted values given to the SYSMark 2000 and PC WorldBench 2000 scores as well as the new SYSMark 2001 and PC WorldBench 4. 3D scores contribute up to 6 of the 20% and are weighted values based on 3DMark 99 Max, 3DMark 2000, and 3DMark 2001. Unlike the PC desktop market, many current models being sold do not meet the minimum specifications for the latest benchmarks. These are tested with the older versions of our benchmarks and incur a 20% penalty on the weighted performance score.

FEATURES AND CAPABILITIES This category makes up 45% of the total evaluation score and is a reflection of the versatility and functionality of the notebook. It is a generic evaluation of both business and domestic notebooks in that it awards points for aspects of multimedia (e.g., DVD-ROM drives, burners, screen size, sound quality), security (e.g., biometrics, Kensington locks), portability, connectivity (e.g., FireWire, USB, PC Card), warranty, bundled software and hardware, and overall weight of a system. The weight figure is displayed on the table and includes the notebook, the power supply and any accessories included in the purchase price, such as external drives and docking stations.

TESTED BATTERY LIFE For this evaluation, a test was devised that would simultaneously work the CPU, all the spindle devices in the notebook, the speakers and the screen, i.e., everything that will drain the power from your notebook. In order to get a level playing field, notebooks are powered up overnight, then all power management is disabled before the test commences. The results you see are the absolute minimum lifespans of the supplied batteries. In a real world environment with power management enabled, they will provide a much longer portable life, providing they are correctly used.

CATEGORIES

The previous Power and Value categories have been put to rest and have been replaced by three price-based categories.

1. **Sub-$3000** — for the budget minded personal user as well as the SOHO and student environments.
2. **$3000 to $6000** — most popular amongst business users.
3. **Over $6000** — for early adopters and power users, both business or personal.

BENCHMARK REFERENCES In the benchmark results, a score of 100 points means a computer has equal performance to a stated reference system. E.g., if a system scores 110 points in a test, it is performing 10% better than the reference system; a score of 90 points means it is performing 10% worse. The reference systems are listed below:

PC WORLDBENCH 4 AMD Athlon 1.2GHz, 128MB RAM, GeForce3, Windows 2000 Professional.

PC WORLDBENCH 2000 Intel Pentium II 400MHz, 96MB RAM, 8GB hard disk, ATI Rage Pro Turbo AGP.

SYSMARK 2000 Intel Pentium III 450MHz, 128MB RAM, 32MB Diamond Viper V770 Ultra @ 1024x768, Windows 98 SE.

SYSMARK 2001 Intel Pentium III 800MHz, 128MB RAM, Creative 32MB DDR GeForce Annihilator 2 @ 1024x768, Windows 2000 (SP1).

128MB of main memory. We couldn't run 3DMark 2001, but 3DMark 2000 returned a score of 2308.

Although the C400's performance scores rank highly, there do appear to be drawbacks in the way Dell has specified the system to keep cost to a minimum. Only a 10GB hard disk has been implemented, there is no FireWire and only a single USB slot. This, though, can be overcome with the purchase of an optional docking station. On the plus side — especially for people needing to adapt to different connectivity environments — is the inclusion of an integrated 56Kbps modem and an Ethernet adapter. Also of interest is the inclusion of both touchpad and touchpoint cursor controlling devices. Bundled with the unit is an external drive caddy that can be used with both the included 3.5in floppy disk drive or the 24x CD-ROM drive. The notebook has a terrific worst case battery life of 110 minutes.

Priced at $6085, the C400 ships complete with a three-year warranty and a leather carry case.

PROS: Performance, light weight, battery life

CONS: Lack of ports

3 Toshiba Tecra 9000

Toshiba's top of the line, champagne-coloured, magnesium-alloy cased notebook features Intel's 830M chipset and runs an Intel Pentium III-M 1066MHz processor, 256MB of RAM and a 30GB hard drive.

Connectivity options include both Wi-Fi and Bluetooth antennas built into the 9000's shock-protected lid. You also get integrated Ethernet and 56Kbps modem ports.

Multimedia functionality has a major focus evidenced by the bundled, hot-swappable 8x4x24x8x CD-R/RW/DVD-ROM combo drive using Toshiba's 'Slim SelectBay'. In addition to a standard VGA-out port, a TV-out port is provided, making way for DVDs or presentations to be viewed on a television. The 16MB S3 SuperSavage IXC graphics controller provides a native resolution of 1400x1050 to the stunningly sharp 14.1in active TFT display.

Other features include a FireWire port, two USB ports, parallel, PS/2, infrared and serial ports, support for two Type II or one Type III PCMCIA Cards, and microphone in plus headphone out audio jacks complete with external volume control. Well integrated into the side of the 9000 is a Secure Digital port allowing SD cards to be used easily. Toshiba has stated that this series of notebook is "unlikely to be superseded for at least 12 months", which IT managers and those worried about TCO will appreciate. Our test machine stormed through our benchmarks, achieving scores you would expect for a notebook at this price point.

4 IBM ThinkPad T23

This T23 features an Intel Pentium III-M running at 1.2GHz, 128MB of RAM, a 14.1in active TFT display with a maximum resolution of 1400x1050, and a combination DVD-ROM drive and CD burner. The T23 ships as standard with a mammoth 48GB hard disk.

3D performance, while boosted by the 16MB S3 SuperSavage IXC graphics controller, doesn't compare with competing notebooks employing an NVIDIA GeForce2. This aside, the T23 is a killer performer when it comes to 2D applications.

The T23 has a plethora of connectivity options, boasting integrated 802.11b wireless LAN, Ethernet and 56Kbps ports. Two Type II or one Type III PCMCIA Cards are also supported. There are two USB ports. Other ports include S-Video TV-out, serial, parallel, PS/2, VGA-out, infrared and audio line-in, headphone and microphone jacks.

With the T23 you get nice little IBM extras. These include the ThinkLight, a small spotlight to illuminate the keyboard, and the UltraPort, a proprietary USB-type port located on top of the display for use with IBM's optional extras. The notebook has a total weight of just 3kg.

With a three-year warranty and the standard feature set mentioned, this ThinkPad provides a compelling long-term solution, especially to business customers.

$3001-$6000

1 Dell Latitude C810

Weighing almost 4kg with its power pack, the Windows 2000-driven Latitude C810 is a substantially-sized notebook with a large 15in active matrix LCD screen. Its user-removable spindle devices (floppy drive and CD-R/RW drive), other than the 10GB hard disk, are housed in separate smart media bays — one located on the front side and one on the left side of the notebook. FireWire, modem, network and sound jacks are found on the right side of the C810, along with slots for two Type II or one Type III PC Cards. The left side of the machine houses the 8x4x24x CD-R/RW drive and S-Video out connector. At the back are the legacy parallel and serial ports as well as two USB, one PS/2 and one docking station port. A comfortable 87-key keyboard is housed above the ample palm rest. Set amidst the keyboard and the palm rest area is the Dell DualPoint pointing device comprised of both a Touch Pad and a Track Stick.

Overall performance from the Latitude C810 is sure to please. The 3DMark 2001 score of 1832 can be attributed directly to the 16MB (upgradeable to 32MB) NVIDIA GeForce2 Go graphics adapter that drives a native resolution of 1600x1200 to the 15in UXGA screen. The rest of the system is powered by a 1.3GHz PIII, 128MB of RAM and a 10GB hard disk.

The Latitude C810 is a serious desktop replacement machine with built-in wireless aerial. It's marketed by Dell for demanding graphics

Subscribe to PC World and Win!

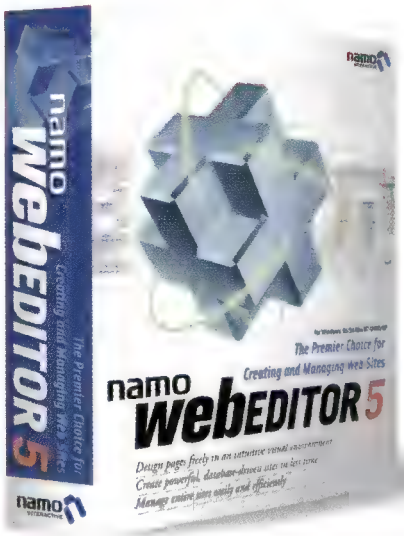
5 TO WIN
Worth $451 each!

Subscribe to PC World for your chance to win one of five fantastic Namo WebEditor 5 software packs!

Your chance to win!

This visual Web authoring software delivers all the tools you need to get a great-looking, leading-edge Web site up and running quickly. Whether you're a beginner or Web expert, Namo WebEditor 5 makes it easy to build rich, expressive, professional-quality Web sites.

- Build a complete Web site in minutes using the Site Wizard
- Create detailed page layouts quickly with easy-to-use visual table design tools
- Add visual spice with built-in image effects and powerful graphics tools
- Add dynamic, interactive effects with the step-by-step Script Wizard
- Design database-driven sites with handy, award-winning tools
- Easily tighten code with automatic cleanup and validation of direct source code changes
- Keep track of all your Web site's different files with the integrated Site Manager
- For more information visit **www.namo.com.au**



pc world

namo INTERACTIVE

Subscribe to PC World and you will be entered into the draw to win one of these five prize packs!

Call today on 1800 248 811 to subscribe and for your chance to win!
Or subscribe online at our secure payment Web site
https://secure.idg.com.au/subscribe
Or mail to:
IDG Communications Pty Ltd, Reply Paid 295, ST LEONARDS NSW 1590

Terms & Conditions – Win Namo WebEditor software packs

1. Information on how to enter and prizes form part of these conditions of entry.
2. Entry is open to all residents of Australia, except employees and immediate families of the promoter, associated companies and agencies. The promoter is IDG Communications Pty Ltd, 88 Christie Street, St Leonards, NSW, 2065.
3. Only one entry per subscription. Multiple subscriptions will be given the same amount of entries in the draw.
4. The competition commences at 9am on 16 January 2002, and closes at 5pm on 20 February 2002. The draw will take place at the offices of the promoter at 11am on 25 February 2002 with the winners being the first entries drawn on this date. The winners will be notified by mail and their names published in The Australian on 4 March 2002.
5. Prizes will be sent within 28 days from the draw date unless otherwise stated.
6. Prizes are subject to availability, and are not transferable.
7. The total prize pool value is $2255 and consists of five Namo WebEditor 5 software packs valued at $451 each.
8. The judges' decision in relation to any aspect of the competition is final and binding on each person who enters. No correspondence will be entered into. No responsibility is accepted for late, or lost or misdirected mail.
9. Entries remain the property of the promoter and cannot be returned. The entries may be entered into a database for future promotional, marketing and publicity purposes unless otherwise stated by the entrant.
10. The promoter shall not be liable for any loss or damage whatsoever suffered (including but not limited to direct or consequential loss) or personal injury suffered or sustained in connection with any other prizes. Any change in the value of the prize occurring between the publishing date and the date this prize is claimed is not the responsibility of the promoter.
11. NSW Permit No. TC/12589; NT Permit No. 01/9108; ACT Permit No. TP01/4930; SA Licence No. T01/4903.

Subscription order form — save $$$$

Yes! Send me PC World every month and enter me in the draw to win one of the five Namo WebEditor 5 software packs worth $451 each!

☐ $66 (includes GST) for 1 year (Australia only) ☐ Tick here if you require a tax invoice receipt

Full name (Mr/Mrs/Ms/Miss): _____

Company: _____

Position: _____ Industry: _____

Postal address: _____

Suburb: _____ State: _____ Postcode: _____

Phone: ( ) _____ Fax: ( ) _____

E-mail address: _____

☐ New subscription ☐ Renewal subscription

☐ Yes, sign me up for PC World's free e-mail news service

☐ I have enclosed my cheque made payable to IDG Communications Pty Ltd

☐ Mastercard ☐ Visa ☐ Diners Club ☐ American Express ☐ Bankcard

Card no: _____

Card holder's name: _____

Expiry date: _____ Signature: _____

Code PW2 ☐ Please tick here if you do not wish to receive future promotional information.

and video applications, but I would suggest an upgrade of the graphics memory, system memory and hard disk. Nevertheless, combined with a three-year warranty, it represents excellent value for money and provides performance, versatility and good upgradeability.

PROS: Performance, graphics capabilities, FireWire

CONS: Screen latch is often difficult to work

2 Compaq Presario 1700

NEW Aimed at people seeking a desktop replacement that can still hit the road, the Compaq Presario 1700 is comprised of an Intel Pentium III-M 1066MHz processor, a hefty 256MB RAM, a 30GB hard disk and a 4x4x24x8x CD-RW/DVD-ROM hot-swappable combination drive. The 14.1in active TFT display has a maximum resolution of 1024x768 and runs courtesy of the brand new 8MB ATI Radeon Mobility M6 graphics controller. While not quite equal to NVIDIA's GeForce2 Go, it still returned a terrific 3DMark 2001 score of 1545. In our productivity application tests, PC WorldBench 4 and SYSMark 2001, the 1700 model we tested scored 93 and 124, respectively.

Only one Type II PCMCIA card is supported, but the 1700 is specified with two USB ports and single parallel, S-Video TV-out and FireWire ports. The eight-cell Lithium Ion battery lasted 98 minutes in our worst case scenario battery tests. The 1700's sound is bolstered by integrated JBL Pro speakers and you are provided with both headphone out and microphone in ports. There is no built-in microphone.

Compaq ships the 1700 with Windows XP Home, Norton AntiVirus 2002, MS Works 6.0, MS Money 2001, MS Encarta, Studio DV, Intervideo WinDVD and an executive leather carry case.

PROS: Feature set and performance

CONS: Just one Type II PC Card supported

3 Toshiba Satellite 3000

The 3.3kg 3000 features an Intel Pentium III 850MHz processor, a 14.1in active TFT display, a 15GB hard disk and an 8x DVD-ROM drive. Perhaps the 64MB of RAM with which the unit ships could have been made 128MB as standard, as it can be optioned up to 512MB of SDRAM. The 3000 scored 76 in PC WorldBench 4 and 120 in SYSMark 2000.

The 16MB NVIDIA GeForce2 Go graphics controller (with maximum resolution of 1280x1024 in true colour) returned a whopping 3DMark 2000 benchmark score of 4331. Multimedia connectivity is via the integrated Smart Media and FireWire ports, in addition to three USB ports and an S-Video TV-out. The 3000, as far as I am aware, was the first notebook to offer such a slot.

For expandability, two Type II or one Type III PCMCIA Cards are supported. The modular DVD-ROM bay can also accommodate a CD-RW/DVD-ROM combo unit or a second hard drive. Jumping on the Net should be no problem thanks to the integrated 56Kbps modem and Ethernet adapters. With our tests returning a worst case scenario battery life of 118 minutes, and a one-year warranty including free courier pick-up and return, the 3000 is a strong option for people who need all the latest high-tech features without sacrificing quality.

4 Toshiba Portege 4000

The Portege 4000 provides a graceful and functional solution for the road warrior class of notebook user. Its slim form factor (3mm thick) still manages to house a built-in 8x DVD-ROM drive on the right side of the system along with a slot for Secure Digital media. The combo drive utilises the Slim SelectBay system, meaning that the drive is hot swappable with a variety of spindle drives and a battery. The left side of the system houses the two PC Card slots, infrared port, two audio jacks for microphone and headphones, and a rotary volume control. At the rear of the notebook are two USB, one NIC, one modem and one VGA port. Notebook size is kept down by the use of a 12.1in Poly Silicon active TFT screen displaying a resolution of 1024x768. The screen is powered by a 16MB Trident Cyberblade XP graphics controller.

The rest of the configuration is made up of a PIII 750MHz processor together with 128MB of RAM and a 20GB hard disk. Things you can't see include an integrated 802.11b Wi-Fi antenna and mini PCI card, and integrated Bluetooth antenna for which you can purchase an optional Bluetooth module.

Performance was more than adequate to handle portable office needs, and battery life was well above average.

5 Sony Vaio FX990

NEW Our supplied FX990 model featured everything most users of a desktop enjoy, while still maintaining the benefits of a portable machine. Running from an Intel Pentium III 1GHz processor, 128MB of RAM and shipping complete with a 20GB hard disk pre-partitioned into two 10GB drives, the FX990 features a crisp 15in active TFT display. Under testing, the system handled most tasks thrown at it, returning 83 under PC World Bench 4 and 96 under SYSMark 2001.

ASUS

P4BS333 Specifications

P4S333

- Intel® Pentium® 4 processor supporting socket 478 CPU up to 2.4 Ghz and beyond
- SiS 645/650 Chipset
- PC 2700/2100/1600 DDR memory support
- Advaced MuTIOL bus 1/0 technology

P4B266 Specifications

P4B266

- Intel® Pentium® 4 processor supporting socket 478 CPU up to 2.4 Ghz and beyond
- Intel® 845 chipset DDR solution
- 3 X DDR DIMM Sockets
- 4 X USB 2.0 and 4 X USB 1.1 Ports
- 6-channel 3D Hardware PCI Audio

Expandability
Motherboards come with 6 PCI slots, AGP 4X slot, and up to 6 USB ports. Users can also connect the ASUS iPanel for convenient connectivity and system monitoring from the front panel.

Extreme Overclocking
ASUS P4S333 and P4B266 offer robust overclocking options to maximize your system performance. Easy DIP Switch or Jumperfree overclocking from BIOS. Flexible CPU Core Voltage Adjustments in 0.05V increments over defaults. Accurate 1MHz adjustments of system-bus-frequency up to 200MHz (i.e. Front-side-bus up to 800MHz). Overclockable AGP bus. Adjustable VIO memory voltage. Adjustable FSB/PCI/MEM ratio. Rock-solid stability.

ASUS Reliability
All ASUS motherboards are designed and tested to meet the highest quality standards. Responsive customer support and frequent BIOS and driver updates ensure that you're getting the fastest, most reliable performance- all the time. All ASUS motherboards are also backed by a 3-year limited warranty.

Sydney 37- 39 Egerton Street, Silverwater, NSW 2128 Tel: (02) 9748 2233 Fax: (02) 9748 3033
Brisbane 62 Hope Street, South Brisbane, QLD 4101 Tel: (07) 3846 5355 Fax: (07) 3846 5115
www.altech.com.au email: sales@altech.com.au

ALTECH Computers

Distributes hardware, software and peripherals

ASUS CHAINTECH TYAN AMD SONY IBM Panasonic APOLLO NANYA CREATIVE.com SOLTEK KINGMAX AOpen SAMSUNG Hansol

The Intel 82815 graphics chipset can share a maximum of 11MB with main memory and returned a 3DMark 2001 score of 531, perhaps a little below par. The keyboard on the FX990 feels great and a touchpad is used for cursor control. One of our favourite additions in the FX990 is the increasingly common CD-RW/DVD-ROM combo drive, in this case specified at 8x4x24x8x.

The FX990 has support for two Type II or one Type III PCMCIA Cards and additional connections include two USB slots, FireWire, a 56Kbps modem, an Ethernet adapter, single parallel and serial ports and a VGA-out port (for an external monitor). Sony bundles a myriad of software, the highlights of which include Windows XP, Intervideo WinDVD and Norton AntiVirus 2002, as well as a host of proprietary Sony multimedia applications. The notebook is slightly hefty, weighing 3.7kg. The FX990's Lithium Ion battery helped it achieve a worst case scenario battery life of 90 minutes.

PROS: 15in display, amount and type of integrated ports

CONS: Slightly on the weighty side, 3D performance

5 Toshiba Satellite 5000

NEW This feature-packed system was launched in November 2001 and was designed by Toshiba with the 'mobile multimedia executive' in mind. The Satellite 5000 is available in two models based on the Intel Pentium III 1100MHz mobile processor.

We looked at the $5499 Windows XP-driven Satellite 5000/00W52 boasting a 20GB hard disk, 128MB of RAM, a 15in active matrix superfine display, 16MB NVIDIA GeForce2 Go graphics accelerator and a hot swappable 8x DVD-ROM drive. The GeForce2 Go adapter is upgradeable to 32MB and the 15in TFT screen is capable of high resolutions up to 1600x1200 pixels.

Toshiba has introduced Harmon Kardon speakers to this range of notebooks and included other features like optical audio out, a built-in sub-woofer and Dolby Digital sound, as well as pumping surround sound from the headphone sockets. Autonomous playback of CD, MP3 and DVD via spine-based buttons has been improved.

Secure Digital and SmartMedia capability has been integrated into the Satellite 5000, making it one of the few notebooks on the market to currently sport this media. Being a multimedia machine, one of the Satellite 5000's greatest assets is its 3D graphics performance: it churned out a robust 1830 points in the toughest of our 3D tests — 3DMark 2001. PC WorldBench 4 and SYSMark 2001 scores of 91 and 81 prove it to be a more than capable 2D performer.

PROS: Great multimedia features and sleek design

CONS: Underperformed slightly in productivity tests

SUB-$3000

1 ASUS M1

For $2970, Altech's ASUS M1 packs quite a few features into its 3.3cm high (when closed) magnesium-aluminium chassis, including the built-in 8x4x24 CD-R/RW drive and a rear-located FireWire (IEEE-1394) port.

Based around an Intel Pentium III 850MHz processor, 192MB of RAM and a 20GB hard drive, the M1 uses the Intel 82815 graphics controller chipset with 11MB of shared memory to provide a maximum resolution of 1024x768 on the 14.1in active TFT display. Under testing, the M1 returned 84 in SYSMark 2001, 78 in PC WorldBench 4 and 518 in 3DMark 2001.

Other features of the M1 include an external 3.5in floppy drive, VGA-out, integrated 56Kbps modem, Ethernet adapter and one parallel port. Audio is catered for with built-in stereo speakers plus microphone in and headphone out audio jacks.

Mouse control is via the built-in touchpad. It should be noted that the M1 does not feature a PS/2 port, so if you're likely to use an external mouse, it will need to be connected via the single USB port. The M1 is supported by a two-year warranty and ships with IBM Via Voice and Easy CD for CD creation, as well as an executive-style carry satchel.

PROS: FireWire, CD-R/RW drive, 192MB RAM

CONS: Shared video memory, external 3.5in floppy

2 ASUS A1300

The stylish A1300 uses an Intel Celeron 800MHz processor running with 192MB of RAM, and a 20GB hard drive, and returned a PC World-Bench 4 score of 65 and a score of 51 in SYSMark 2001. The 13.1in screen delivers a vibrant image served up by the 16MB (BIOS configurable up to 64MB) of shared video memory using the SiS 630 integrated chipset. When tested with the default 16MB, a score of 387 in 3DMark 2001 was obtained; although certainly usable, this is slightly under par. Other features include a built-in 3.5in floppy disk drive, 8x DVD-ROM, two USB ports and autonomous CD player controls.

Shipping with both an Ethernet adapter and a built-in 56Kbps modem, the A1300 is backed by the inclusion of a street-smart carry bag and an external USB mouse. Complementing the PS2 port are single parallel, serial and S-Video TV-out ports. Supplied with a one-year international return-to-base warranty and priced at $2380, the ASUS A1300 is a terrific-looking machine with broad appeal.

3 Optima Dynamis A1300DJ

NEW The two-tone light and dark grey casing houses an Intel Pentium III 850MHz CPU coupled with 256MB of RAM and a 10GB UDMA 100 hard drive. Graphics duties are handled by the integrated SiS 630 graphics controller (with TV-out port) that allows up to 64MB of RAM to be apportioned

to the graphics card. The 13.3in active TFT screen adequately handled the input from the 8x DVD-ROM drive.

Connectivity is up to par, featuring two USB ports as well as the standard audio jacks, parallel, serial, PS2, infrared, PC Card, 56Kbps modem and network card ports. The keyboard is well sized and the ample palm rest houses the two-button glide pad. Application performance from this Windows XP Home system was comparable to the Intel 850MHz ASUS M1 but lagged behind the other Intel 850MHz machine, the Toshiba Satellite 1800. Graphics performance was among the best in its class, not only completing our tough 3DMark 2001 test but returning a score of 601. The Dynamis appears to be solidly constructed, weighs 3.5kg and utilises an eight-cell Lithium Ion battery that returned 86 minutes of battery life in our torture test.

Although this notebook's asking price of $2999 shouldn't stop you from considering it, it did prevent the Dynamis from getting a higher ranking.

PROS: Feature set
CONS: Initial pricing

3 Pioneer SOHO Notebook

NEW The terrifically priced $2399 Pioneer SOHO Notebook boasts a 1.2GHz Intel Celeron processor, 256MB of RAM, a 10GB hard disk and a 13.3in active TFT display. This combination of features resulted in scores of 78 in PC WorldBench 4 and 81 in SYSMark 2001. The SiS 630 graphics chipset can be configured via the BIOS to share a maximum of 64MB with main memory and scored 609 in 3DMark 2001.

In appearance, the silver-toned, plastic-cased notebook looks exactly the same as the Pioneer Power Notebook reviewed in the January charts, complete with the purple swirl of colour on its lid. This value SOHO model features a 24x CD-ROM drive and support for one Type II PCMCIA Card, in addition to packing in integrated ports such as USB (two), FireWire, S-Video TV-out, VGA-out, PS/2, parallel and infrared. A touch pad offers cursor control.

Connectivity is via the included integrated 56Kbps modem and an Ethernet adapter. We tested the worst case scenario battery life to be 85 minutes and the total weight to be 3.5kg. For its price, the SOHO is well worth consideration by those on a budget, and ships with a carry bag and one-year parts, three-year labour warranty.

PROS: Price, three-year labour warranty
CONS: Slightly bulky

4 IBM ThinkPad R30

The ThinkPad R30 is aimed at people on a budget who still need the essentials required for productive mobile computing. It ships with an Intel 900MHz Celeron, 128MB of RAM, 10GB hard disk and a 24x CD-ROM (no DVD though). An 8MB Trident CyberBlade graphics controller has been used to provide a native resolution of 1024x768 to the 13.3in active TFT display. In performance testing, the R30 scored 60 in SYSMark 2001, 67 in PC WorldBench 4 and 582 in 3DMark 2000.

Featuring the recognisable black chassis ThinkPad design, the R30 comes with ThinkPad quick access keys and the ThinkLight to illuminate the keyboard. Two USB ports are implemented and single parallel, infrared and docking ports are also provided — but no PS/2 port. One Type II and one Type III PCMCIA Cards are supported, and FireWire is an optional extra. Coming as standard are both an internal 56Kbps modem and an Ethernet adapter.

Cursor control is via the TrackPoint pointing device that features 'press to select' and an Internet scroll bar. The R30's keyboard has full-sized keys and an ergonomically designed palm rest. For $2599 you also get a one-year warranty, Windows 2000 and Lotus SmartSuite.

5 Toshiba Satellite 1800

The model we tested shipped with an Intel Pentium III 850MHz processor, 64MB of RAM, a 15GB hard drive and an 8MB Trident Cyberblade mobile graphics controller that pushed a native resolution of 1024x768 to the 13.1in active TFT display.

You'll find dedicated CD/DVD control keys at the front of the machine, below the comfortably sized palm rest. Also built into the machine are 3.5in floppy disk and 8x DVD-ROM drives, and bonus TV-out port. Other ports include VGA-out, two USB, and one each serial, infrared, parallel and PS/2 ports, in addition to built-in Ethernet and 56Kbps modem adapters. Two Type II or one Type III PCMCIA Cards are supported, plus microphone in and headphone out audio jacks.

Our supplied test unit running Windows Me scored 98 in SYSMark 2000 (more RAM is required for SYSMark 2001) and a respectable 120 in PC WorldBench 2000. We were forced to resort to 3DMark 99 Max to test the 1800's graphic capabilities (it scored 2107). Overall, the 1800 is well worth considering. ■

Mainstream

All-In-One

Pearl 2200T Series

Power on the Go

Super Value without compromise

Presentation Quality graphics	Power and Performance	Unlimited Communication	Supreme Portability	3 Hotkeys
14.1"/13.3" XGA TFT and Ultra AGP	Intel Pentium III 1.2 GHz Intel Celeron 1.4GHz	Built-in LAN and 56K V.90 MDC Modem module	Approximately 1.36"(37.5mm) thin and 6.6 lbs (3kg)	Built-in 3 hot keys for E-mail, worldwide web and application key

Pearl computer P/L
7 Kelray Place, Asquith NSW 2077

Tel: (02) 9476 0788
Fax:(02) 9476 0899
email: pearl@rivernet.com.au

Pearl is a name you can trust. Established in 1992, we still service our product that sold 10 years ago.

LinuxWorld.com.au

Great games, great price (free!)

BY RODNEY GEDDA

In keeping with this month's games round-up, we are reviewing a selection of free games for Linux that is sure to provide you with hours of entertainment. As is the case with most Linux software, many games are developed by the open source community and are available as free software. The inspiration for many of these games ranges from clones of classic arcade games to replication of popular Windows games.

CLASSIC CLONES

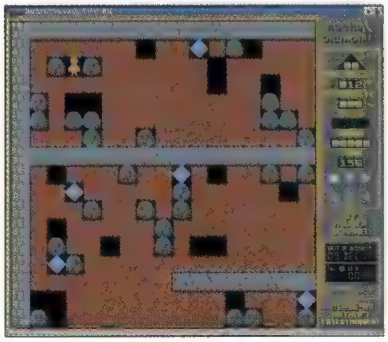
Rocks'n'Diamonds

The term "clone" is used to describe a game that has been designed to replicate another game but does not run under an emulator or possess any of the original code. One such classic game available under Linux is Rocks'n'Diamonds, a clone of the classic Boulder Dash in which you need to collect all the gems and make it to safety before your time runs out.

In addition to the original Boulder Dash, Rocks'n'Diamonds contains Emerald Mine, Sokoban and Supraplex, which are similar in theme but vary in the types of obstacles you face. If you are after even more of a challenge, Boulder Dash II, Boulder Dash 16 and XBD are also included.

As well as the selection of games available in Rocks'n'Diamonds, you can configure your keyboard and joystick settings as well as edit your own levels.

Before you can begin playing Rocks'n'Diamonds, you will need to have Simple Directmedia Layer (SDL) installed on your system. Most distributions have SDL (which provides faster graphics) installed by default, but we've also provided it on this month's cover CD.



Rocks'n'Diamonds uses SDL for sound and graphics.

Pingus

Another fun clone is Pingus, based on Lemmings. Here, instead of lemmings as the characters, you will need to guide little Tux penguins to safety. In order to save the penguins from disaster, some must be used for specialist tasks such as blocking, digging and drilling. Be warned though: they do move at a very quick pace and you must be on the ball right from the start.

LBreakout

Also included as part of our clone collection is LBreakout, which is modelled on the Breakout and Arkanoid arcade games. To proceed to the next level, you have to paddle a ball and break all the bricks above you. In return for breaking as many bricks as you can, you will be given the opportunity to gather weapons and features such as a wider paddle.

ESPECIALLY FOR LINUX

If you don't feel like a blast from the past, check out these popular games designed especially for Linux.

Tux Racer

Tux Racer (www.tuxracer.com) is the game that Linux users everywhere enjoy.

Tux Racer is the game for Linux.

Playing the role of Tux the penguin, you must slide head first down an icy mountain making sure you gobble at least a minimum number of herring along the way. This 3D racer is not for the faint-hearted, as you are racing against the clock and patches of ice make for some very slippery racing.

Developed by Sunspire Studios in conjunction with open source hackers, Tux Racer gives you the option of having a practice run before you enter any races. You can reach speeds in excess of 70km/h, so it is recommended that you keep it slow so that you don't miss any herring along the way. In addition to the high speed and slippery course, you may also face high winds and even snowfall in your quest for glory.

Overkill

Apart from Linux games designed for 2D and 3D graphics, some seem to exist for their sheer geek value alone. Overkill is a bloody, two-dimensional shooter game programmed completely with ASCII art, so what you see is different coloured letters and other characters making up the graphics.

Overkill is bloody in the sense that when you shoot your enemies, red characters will sprout from them. The game can be played by yourself or can be networked to allow your friends to join the action.

Many free games are available for Linux, and although not all possess the complexity of commercially available alternatives, these games do a great job of providing hours of fun and entertainment. See this month's cover CD for the games mentioned. ■

LinuxWorld.com.au

ON THIS MONTH'S COVER CD-ROM:

- Mesa 3D Graphics Library
- Loki Demo Launcher 1.0
- Simple Direct Media Layer 1.2.2
- LBreakout
- Overkill
- Pingus
- Powermanga
- Rocks'n'Diamonds
- Tuxracer

here's how

104 UPGRADER
Installing a new hard drive: Part 1

108 WINDOWS 9x
Transfer Outlook Express settings

110 WINDOWS 2000
Scripting solutions

112 WINDOWS ME
Toolbar tips

114 WINDOWS XP
Compress those files; Pin shortcuts

116 LINUX
Utilising USB modems

117 MAC OS
Using iTunes 2

118 AUDIO
EZ-Mixer 1.0 SE

119 GRAPHICS
Scanning and resolution

120 HTML
Troubleshooting

121 PHP
Dealing with databases

122 HELP SCREEN

Operating Systems 122
Windows — Perform tasks on shutdown; Time-stamp your notes; Linux — Disk partitioning

Office Applications 123
Office XP — Shortcuts for Word and Outlook

Internet.....124
Quick and simple searches with Explorer; Get, set IE's quick search; Use Google in XP

Hardware 125
Get the most from your display and graphics card; Designate your driver; Get unbusy

HelpScreen
Now just a click away
Visit
http://helpscreen.com.au
To have all your questions answered with our interactive FAQ

Installing a new hard drive: Part 1

BY ELIAS PLASTIRAS

Adding and replacing hard drives is perhaps one of the most popular upgrade projects there is — because, let's face it, you can never have too much disk space. Large operating systems, applications, games and Internet downloads can leave your previously capacious hard disk cramped and bloated. These days, the minimum drive capacity you should aim for is 20GB, but much larger capacities (up to 120GB) are available for professionals or hobbyists who work with very large multimedia files.

The most common type of hard drive, found in most consumer PCs, utilises the IDE interface. In this guide I will go through the steps involved in replacing your old IDE drive with a new one from scratch. Also, I'll show you how to go about adding a second hard drive to your system to complement your existing drive.

BEFORE YOU BEGIN

Back up your data

While your operating system, device drivers and all your applications can be reinstalled from their original disks to your new hard disk, you will need to back up all your data files (i.e., word documents, music files, images, etc.). There are numerous ways to do this, which can't all be explained in this article, but the easiest would probably be to burn your files to CD. If you simply wish to transfer your data, one method is to detach your current hard drive, install and prepare the new one, and then attach the old drive as a slave to transfer your data files to a new location.

the top down

BENEFITS: Larger storage capacity for a few years at least

COST: $200-$700 (depending on capacity and spin speed)

TIME REQUIRED: about 20 minutes for physical installation

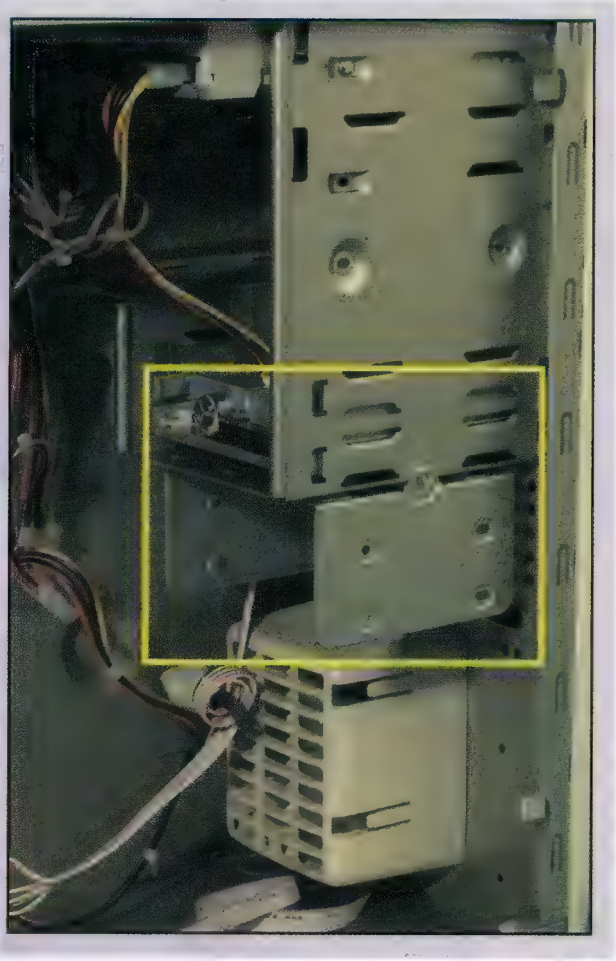
TOOLS REQUIRED: Philips head screwdriver, long-nose pliers or tweezers

EXPERTISE LEVEL: Experienced to advanced

VENDORS:
IBM (**www.ibm.com/au**),
Seagate (**www.seagate.com**),
Maxtor (**www.maxtor.com.au**)

Under the hood

PC hard drives come in a 3.5in form factor (the same size as a floppy drive) and, therefore, need to be installed in an internal drive bay of this size. Open your PC to locate your drive bays and determine how easy they will be to access. In some cases, expansion cards and even memory modules may need to be removed in order for you to physically manoeuvre the drive into place. Make a note of where everything goes before you remove anything.



In this Peripherals Plus system, the hard drive bay (highlighted) is very easy to access, and can even be completely removed from the case.

Capacity and ATA specification

Most new hard drives come equipped with an ATA100 specification interface. If your motherboard doesn't support this specification, don't worry, because modern hard disks are backwards-compatible with previous motherboard ATA specifications such as ATA33 and ATA66. In some cases, if the BIOS on your motherboard is a tad too old, your new hard disk may not be properly recognised at all (i.e., the system will not recognise the full capacity of the drive). In this instance, a BIOS upgrade for your motherboard may be in order. Check with the manufacturer of your board to find out if it will accept the type and capacity of drive to which you want to upgrade.

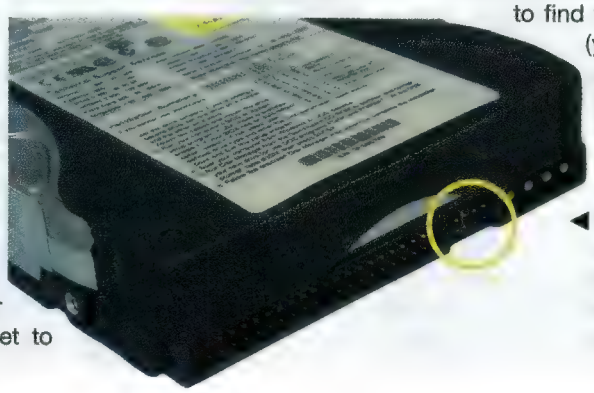
INSTALLING A NEW PRIMARY OR SECONDARY DRIVE

The first step is to completely take the cover off your PC so you have access to both sides of the case. Take careful note of which cables are plugged into your existing hard drive and where they connect to other devices and the motherboard. Unplug the power cord from your existing drive and then gently take off the flat, data ribbon cable. Drives are usually held in place by four screws (two on either side), so you will need to remove these next.

Slide the drive out of the case and place it somewhere safe. Now pull out the new drive from its antistatic bag.

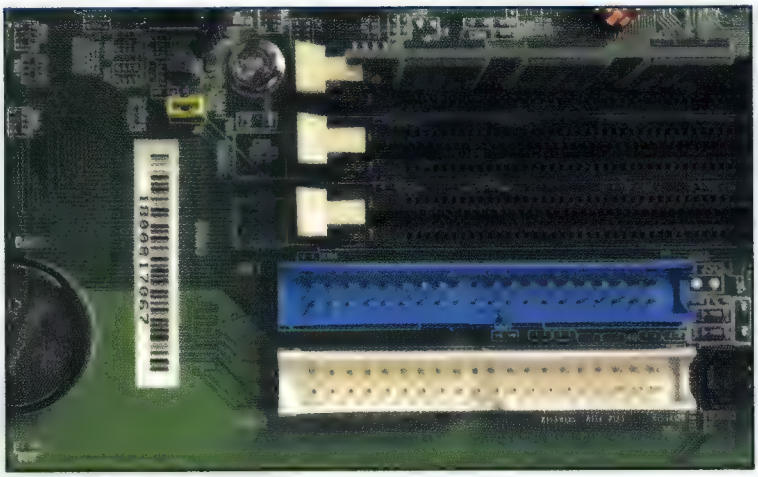
Before you attempt to place the drive into your case, you will need to check its jumper settings. If your new drive must be installed as a Primary Master then the jumper settings on the drive must be set to Master, so look on the drive or in its accompanying documentation to find the correct jumper settings. Use a pair of pointy pliers or tweezers to place the jumper onto its correct position.

The data ribbon cable attached to your drive must also be attached to the motherboard's IDE 1 controller. Look at the two IDE connections on your motherboard to find the Primary IDE controller (your previous drive should have been attached to it). In some cases it may be colour coded.



The jumpers on this drive are highlighted. A sticker atop the drive indicates the settings for Master and Slave nodes.

If you are installing a second drive, then you have a few more choices. You can attach the drive to your secondary IDE controller (IDE 2) as a master, and have your CD-ROM device set up as a Slave (again, by manipulating the jumpers) attached to the same ribbon cable. The other method is to set up your hard drive as a Slave and pair it up on the first IDE channel (IDE 1) with your original hard drive.



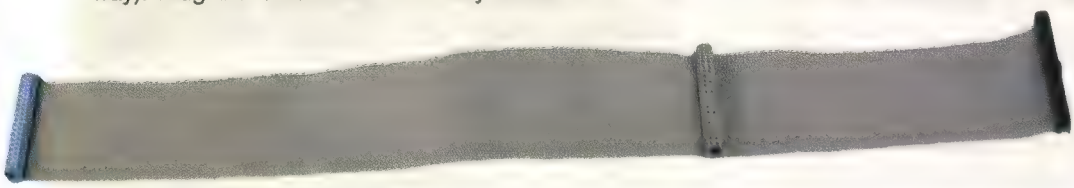
The IDE controllers on this motherboard are clearly marked.

Back in the box

Once the jumpers are set and you've located the correct IDE controller, place the drive into your case with its circuit board facing down, align the appropriate screw holes and mount it securely using four screws.

On your data ribbon cable (these are usually supplied with your motherboard) you should find three connectors. Plug the end that is farthest from the middle connector to your IDE controller on the motherboard (in most cases, a notch ensures that this can't be plugged in the wrong way). Plug the other end of it into your new drive. The coloured stripe on the ribbon cable indicates pin 1 and is located nearest the power connector on the drive (once again, a notch should be present) so you will need to carefully manoeuvre the cable to this position.

The last part of the physical installation requires you to connect the power plug. This can only fit one way, so you will need to align the angled bevelled edges of the plug with the drive and gently push it into place.



▼ This is a typical data ribbon cable. In this case, the left blue end must be plugged into your motherboard and the opposite end must be plugged into your master drive. The middle plug is used to connect a slave drive.

BIOS settings

With your new drive physically installed, the next step is to get the system BIOS to recognise it correctly. This entails going into your system's BIOS program. Accessing the BIOS on most systems can be achieved by holding down the **<Del>** key as the system boots, but watch your screen for messages such as "Hit xx to enter setup", just to be sure.

BIOS programs vary according to motherboard make and model but, generally, hard drive setup can be found under the 'Standard CMOS Setup' heading or something similar. It is safe to say that almost all systems sold in the last three years will sport an autodetect hard drive utility that will detect your drive with the press of the <Enter> button. Otherwise, navigate to the Standard CMOS Setup or equivalent, and toggle the Type for your Primary Master entry to read AUTO.

Now exit the BIOS, saving your changes, observe your bootup screen to see if your drive has been correctly detected.

HINT: press the **<Pause>** button as the system is displaying bootup information to freeze the screen. Press **<Space>** to resume the bootup process.

Part 2

Next month, we will look into the role of your operating system in setting up new hard drives with FAT32 and NTFS partitions. We will also be delving into disk preparation using the Fdisk utility, which is used to display, add or alter partition information on your computer's hard disk(s). This is a useful tool in your system and should be part of your data storage strategy.

Systems and Network Administrators, Microsoft's new certification helps get all your ducks in a row.

Systems and Network Administration is an increasingly specialist role and Microsoft recognises this with the introduction of our new Microsoft Certified Systems Administrator (MCSA) credential from January 2002. The MCSA credential has been designed to include a subset of the Microsoft Certified Systems Engineer credential exams, providing the opportunity to grow your skill set in the administration of Windows® 2000 based platforms, as well as validating your current network management capabilities.

The curriculum will include Microsoft Windows 2000 Network and Operating System Essentials; Implementing Microsoft Windows 2000 Professional and Server; and Managing a Microsoft Windows 2000 Network Environment. With growing demand for Systems and Network Administrators, this credential will not only help you do a better job, it may help you get a better one. Like all Microsoft Certification, MCSA is the perfect way to grow your career.

For more details about the MCSA credential, visit **www.microsoft.com/mcp/**
Alternatively to find your closest Microsoft Certified Technical Education Centre (CTEC) partner,
Microsoft's premier go-to-market training channel, visit **www.microsoft.com/australia/training/CTEC/**

Microsoft® CERTIFIED Technical Education Center

Microsoft® CERTIFIED Systems Administrator

© 2001 Microsoft Corporation. All rights reserved. Microsoft, the Microsoft logo, the Microsoft Certified Technical Education Center and the Microsoft Certified Systems Administrator are either registered trademarks or trademarks of Microsoft Corporation in the United States and/or other countries. The names of actual companies mentioned here may be the trademarks of their respective owners.

MIC1095 11/01

windows 9x

Transfer Outlook Express settings

BY LINCOLN SPECTOR

Moving your Outlook Express settings to a new machine is not an easy task. Your Outlook Express setup has four different pieces that you may want to move. I suggest that you transfer them in the order listed below.

ACCOUNTS On your old computer, open Outlook Express, select *Tools-Accounts*, and under the *Mail* tab pick the account you want to transfer. Click the *Export* button, save the file to a floppy disk or other removable medium, and move it to the new computer. Select *Tools-Accounts* on the new computer, click the *Import* button, and double-click the file you exported.

ADDRESS BOOK Like Accounts, Address Book contains an easy export/import feature, which you'll find on its File menu — but the feature doesn't work very well. If you use Address Book folders to organise your contacts, importing an address book will wipe out that organisation.

Instead, copy the address book file from the old computer to the new one. The location where Outlook Express keeps the address book and the name it gives the file vary from one PC to another. To find yours, select *Start-Search-For Files or Folders* (or *Find-Files or Folders*) and enter ***.wab** in the "Search for files or folders named" (or Named) text box. If the search unearths just one, that's the one you want. If it finds more than one, you'll have to figure out which option is your address book. The correct file is likely named after you, with a designation such as 'default.wab'. Double-click the file to read its contents, if you like.

After you have searched both the PCs, copy the .wab file to either a removable or a network drive on the old computer, and then move it to the new PC. Give the file the same name as the new computer's existing .wab file, and place it in the same folder so that it replaces the .wab file used by your new computer's Outlook Express.

RULES, SIGNATURES, AND OTHER SETTINGS This is by far the hardest part. On the old computer, select *Start-Run*, type **regedit**, and press **<Enter>**. Navigate the Registry Editor's left pane as if it were Windows Explorer until you find HKEY_CURRENT_USER\Identities. Click the plus sign next to Identities to see one or more "keys", each identified with a long, bracketed string of letters and numbers. If there's only one key, you've found the one to use. If there are multiple keys, select each one and in the right pane examine the data it contains. The identity of the key that refers to you should be obvious.

In the correct identity's subkeys, go to and highlight Software\Microsoft\Outlook Express. Select *Registry-Export Registry File*. Save the file and move it to a temporary folder on the new computer.

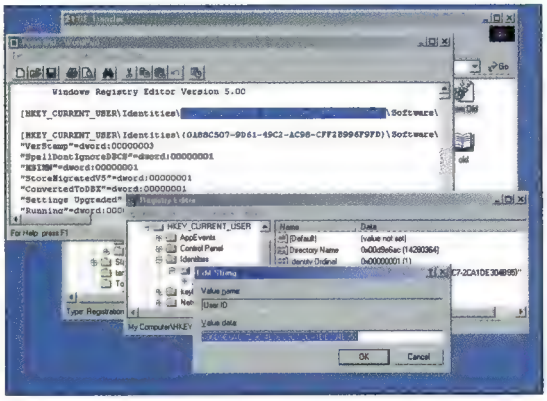


FIGURE 1: To move your OE settings to a new PC, change the ID number with WordPad and Regedit.

Make sure Outlook Express is closed; then open three applications on your new computer's desktop: WordPad, the Registry Editor, and Windows Explorer. Make sure Explorer is opened to the folder containing the .reg file that you just exported.

In the Registry Editor, navigate to HKEY_CURRENT_USER\Identities and click your identity's key in the left pane. In the right pane, double-click the UserID value to bring up the Edit String dialogue box. With the 'Value data' field highlighted, press **<Ctrl>-C** to copy the identification string. Press **<Esc>** to close the dialogue box (see FIGURE 1). Close the Registry Editor.

In Explorer, drag the .reg file to the WordPad window and drop it on the menus, not on the blank editing space. This will load the file into WordPad. Near the top of the file, you'll see a line that starts [HKEY_CURRENT_USER\Identities\, followed by the identity number from the old computer. Highlight that number, including the curly brackets that surround it, but don't highlight the backslashes that surround the brackets.

Select *Edit-Replace*. The identity number that you've just highlighted should now appear in the Replace dialogue box's 'Find what' field. Next, move to the 'Replace with' field and press **<Ctrl>-V** to paste in the new computer's identity. Click *Replace All*, followed by *File-Save*, and then close WordPad. In Windows Explorer, double-click the file, and then click *Yes*.

MAILBOXES To move your Inbox, Sent Items, and any mailboxes you created yourself, simply move all of the files from their folder on the old PC to a folder on the new system. To find the location of that folder, open Outlook Express, select *Tools-Options*, click the *Maintenance* tab, and then click the *Store Folder* button. That method will work on both computers, but if you've brought over the rules, signatures, and other settings as described above, the files will be located in the same place on the new computer as on the old one. Exit Outlook Express on each computer before you begin copying the files. ■

Computer questions?

Get the answers at HelpScreen, PC World's new online question and answer site.

HelpScreen is brought to you by pc world

HelpScreen.com.au

Scripting solutions

BY JUHA SAARINEN

When it comes to scripting, Windows 2000 offers plenty of choices. Scripting is, in simple terms, the use of an interpreted programming language to automate repetitive tasks, and even build small applications.

CMD SHELL The CMD shell in Windows 2000 offers scriptability, similar to the old DOS BATch files, but with more features. As with DOS, a .bat extension tells CMD to treat the script as executable; however, just like NT and OS/2, Windows 2000 also treats files with the .cmd extension as executable scripts.

The native Windows 2000 shell scripting lets you do conditional looping, jumping and branching, and parameter substitution, and call other batch files as well. Global and local environment variables are also supported, plus output redirection with > < << >> and | [pipe] for further processing by other programs.

The commands available to you include:

call	pause
echo	rem
endlocal	setlocal
for	shift
goto	% [variable]
if	

These commands are well-documented: simply issue the /? switch after each (e.g., **for /?**) for an exhaustive list of options and sample code; combine this information with the output of the /? for other shell commands (e.g., NET USER) to write the pseudo-code for your script and, ultimately, the script itself.

Unlike UNIX, Windows shell scripts cannot access all areas of the system. There is no way, for example, to script the Disk Defragmenter to run automatically on certain volumes at given intervals, because the Microsoft Management Console (MMC) doesn't provide a command line interface.

WINDOWS SCRIPT A more powerful scripting solution for Windows 2000 is Microsoft's Windows Script, which, among other things, provides a way to script GUI apps — in fact, you could replace the text-only login scripts with VBS (Visual Basic Script) equivalents which provide a nice GUI for users. Windows Script is COM (Component Object Model) aware, giving you access to any system object you like, as long as they are registered with the operating system.

Windows Script requires the Windows Scripting Host (WSH) to be installed, and there have been several security issues with this in the past — some of the most widespread viruses have been VBS ones, using WSH to gain access to important system structures. The latest version (5.6 as of going to press) introduces a new security model that lets users verify scripts before running them. Developers can also sign scripts, to add another layer of authentication and protection against tampering, and administrators can establish policies that allow only certain users to run local and/or remote scripts. Download WSH plus documentation for it from **http://communities.msn.com/windowsscript**, which also has code examples plus hints and tips for beginners.

WSH also contains Microsoft's JScript scripting engine, a script debugger, and several scripting components, on top of the Windows Script runtime. It allows you to create command-line apps (run them with cscript.exe), GUI ones (run with wscript.exe) and scripts that can be hosted through Active Server Pages on Internet Information Server. It's a comprehensive and complex scripting solution which takes time to master, so investing in some classes and books is a good idea.

PERL If you're looking for a non-Microsoft scripting solution, PERL (**www.perl.org, www.perl.com**) is hard to overlook. Created by Larry Wall, it's a mature and fully-featured interpreted language that has been in use on UNIX for years. There is an abundance of sample code and online tutorials to get you started, not to mention reusable PERL modules that simplify and speed up coding of applications significantly.

Furthermore, with a bit of planning (e.g., don't use WSH objects), your code will run on both Windows and UNIX.

PERL is extremely powerful for text string manipulation. Say you want to replace all instances of "change-me" with "to this" in a number of text files in a directory; if any file is changed, you want to save the original file with a .bak extension.

This PERL one-liner will do it for you:

```
perl -we "s/change-me/to this /gi" -p -i.bak *.txt
```

However, writing and maintaining large applications in PERL can be a chore, and it's not the easiest language in the world to learn.

The Win32 version of PERL is provided by ActiveState (**www.activestate.com**), which also develops Visual Studio plug-ins with a graphical debugger and source code revision control, for the language. ActiveState Perl is very well integrated with Windows and work is in progress to develop a .NET version as well.

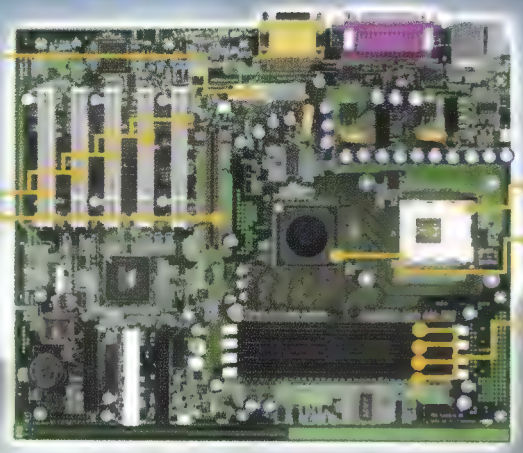
Get the 12MB ActivePerl installer from **http://downloads.activestate.com/ActivePerl/Windows/5.6/ActivePerl-5.6.1.630-MSWin32-x86.msi** (Microsoft Installer Package format). ■

Here are some good sites with sample code, as well as hints and tips, for getting started with scripting:

- **http://cwashington.netreach.net**
- **www.desktopengineer.com**
- **www.adminscripts.net**

Power 4 X -GENERATION

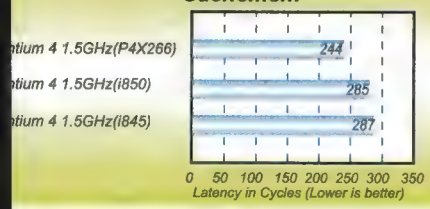
S2266



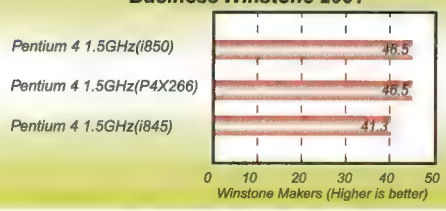
Trinity 510

Based on the VIA P4X266A chipset, our Trinity 510 supports the Intel Pentium 4 Processor and lightning-fast Double Data Rate (DDR) memory. This combination provides outstanding performance for the latest high-end graphics and multimedia applications including digital music, 3D gaming, voice-recognition, digital imaging and video, and more. The Trinity 510 features a 4x AGP slot for adding a fast graphics accelerator, four DDR slots. ATA-100 support for fast disk access, USB ports for connecting external peripherals and more!

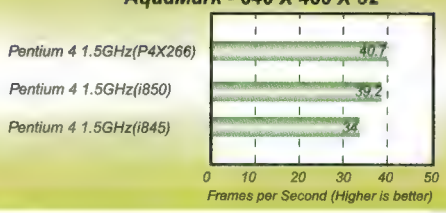
Memory Latency
Cachemem



Office Application Performance
Business Winstone 2001



3D Gaming Performance
AquaMark - 640 X 480 X 32



TYAN
Innovative Internet Platforms

Altech Computers
NSW : (02) 9748-2233
QLD : (07) 3846-5355

Digicor Pty Ltd
NSW : (02) 9648-6800
VIC : (03) 9560-7222

Direct Memory Access
WA : (08) 9445-9500

Rectron Electronics
VIC : (03) 9561-6166

For more information on Tyan products, visit our corporate web site at www.tyan.com

VIA we connect

windows me

Toolbar tips

BY ELIAS PLASTIRAS

The Toolbars in Windows Explorer are aligned with shortcuts and functions to boost your productivity when managing or browsing your files. A standard window can have up to three toolbars on display: Standard Buttons, Address Bar and the Links toolbar. If you don't see any of them, you can activate them through the Toolbars options from the View menu.

TOOLBAR PLACEMENT When you first activate your toolbars, you may find that they are all over the place and possibly even overlap other toolbars. This is easily remedied by placing the mouse pointer on the name of the toolbar, clicking (the pointer should turn into a multi-headed arrow) and dragging the toolbar to another location. The vertical bar to the left of the toolbar's name can also be dragged to resize the toolbar, and double arrows are shown if the toolbar has more features than can be displayed on the screen. Simply click on the double arrows to view a drop menu of items.

If you find that you can't add — let alone resize or move — your toolbars, you may have the locking option enabled. To rectify this, right-click anywhere on any of your toolbars and make sure that there isn't a check mark next to the "Lock the Toolbars" entry. Conversely, if you have just spent time fixing and manipulating your toolbars to your liking, you can enable this option to keep your toolbars in their current positions.

From the View menu, you will find that your toolbars can be customised (see FIGURE 1). Click this option if you want to add more functions or shortcuts. This is also the place to come if you want to change the look of the toolbar buttons: you can display smaller or larger icons as well as add or take away their text labels. You should use the latter once you have memorised the functions of each button, as this will save screen space.

QUICKER MANAGEMENT Now that you have your toolbars in place it's time to start making them work for you. In particular, the Standard buttons toolbar contains navigational aids in the form of Back and Forward buttons that work in very much the same way your Web browser does, while the Up button can be used to jump up one level at a time in your folder hierarchy.

The next three buttons on your toolbar pertain to the portion of your window that displays your folders' tree structure and lets you navigate all the drives on your computer. It is called the Explorer bar and it isn't limited solely to displaying your folders. Click the *Search* button on your toolbar and the Explorer bar will quickly morph into the Windows Search utility, helping you search for files without even leaving your current window (see FIGURE 2). The Folders button next to it will take you back to your folder view once your search has completed, while the History button can be used to peruse previous days' Internet links as well as local files.

The next two buttons on the Standard toolbar are perhaps overlooked when it comes to copying and moving files, but they are extremely useful for getting files from one location to another without ever leaving your current window. Just select the files you wish to copy or move, then click the appropriate button from the toolbar. A dialogue box will pop up in which you can browse to the location where this file will be relocated or duplicated. You can use the tree structure to navigate and you can even create a new folder. Click *OK* when you're done. No dragging and dropping nor navigating through menu commands needed. ■

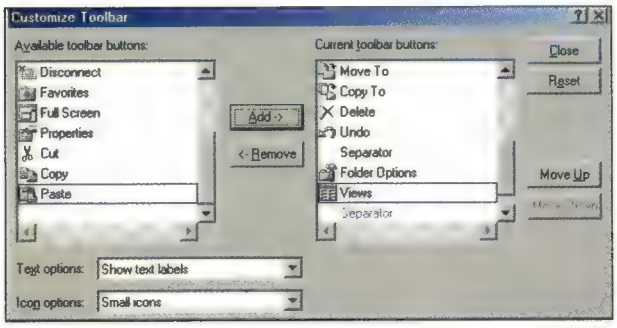


FIGURE 1: Buttons linked to regularly used commands can be added easily to your Standard toolbar.

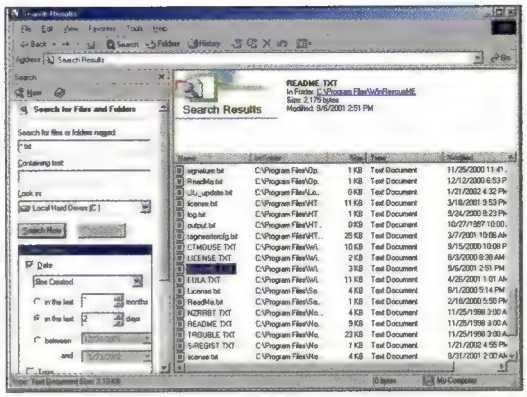


FIGURE 2: One click on *Search* lets you track down files quickly.

MouseKeys

As a part of Windows' Accessibility Options, MouseKeys allows you to control the pointer on your screen without moving the mouse. Instead, you use the numeric keypad on your keyboard to manipulate direction, click and drag.

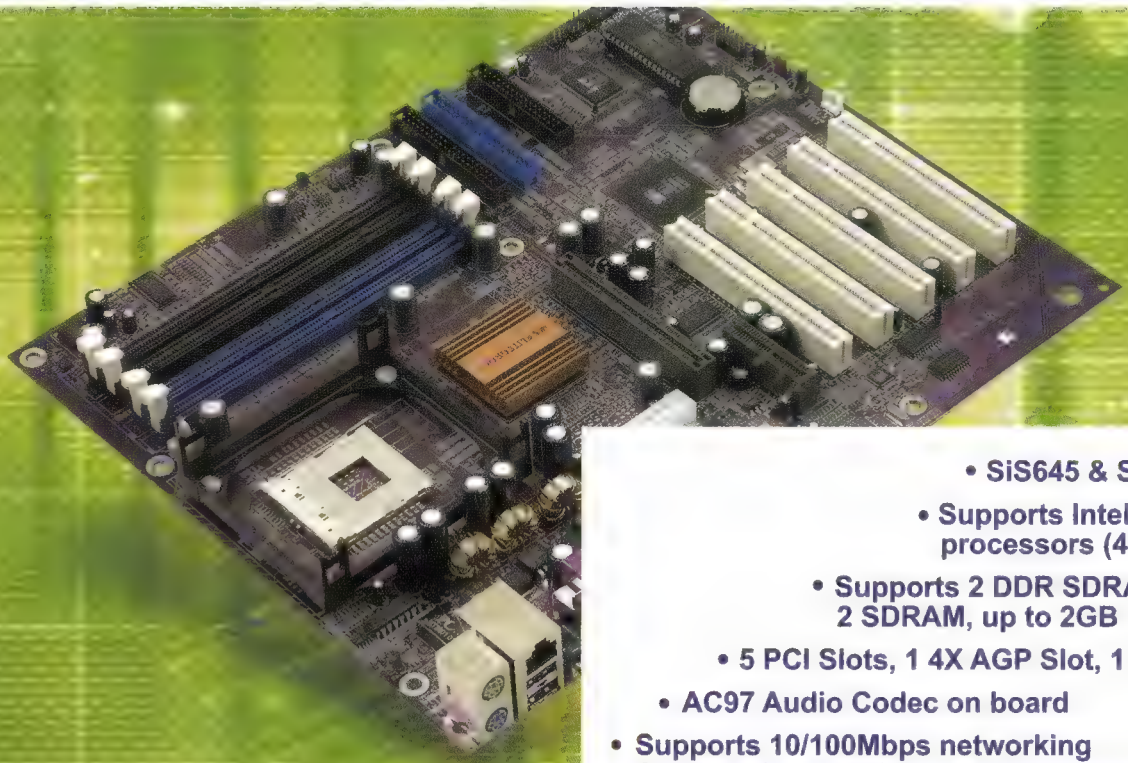
You can activate MouseKeys by going to the Control Panel and double-clicking the *Accessibility Options*. From there, go to the Mouse tab and place a check in the "Use MouseKeys" box. Click on the *Settings* button to change the speed and acceleration of the pointer. By default, MouseKeys will only work when the NumLock key is on. You also have the option of displaying the MouseKeys status in your System Tray, which is a good idea, as this will let you know whether the utility is active. The NumLock key will emit a beep each time it is pressed: a high-pitched beep indicates an activated MouseKeys, while a low-pitched beep indicates deactivation.

You can move the pointer now by using the numbers 1 through 9. You're able to single-click by pressing the 5 key; double-clicking and right-clicking can be achieved by pressing the plus and minus signs, respectively.

P4S5A

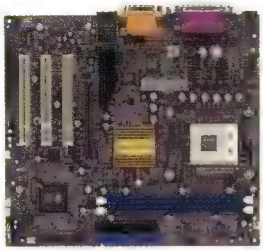
ECS ELITEGROUP

tium® Solution



- SiS645 & SiS961
- Supports Intel Pentium®4 processors (478pins)
- Supports 2 DDR SDRAM or 2 SDRAM, up to 2GB
- 5 PCI Slots, 1 4X AGP Slot, 1 AMR Slot
- AC97 Audio Codec on board
- Supports 10/100Mbps networking function (optional)

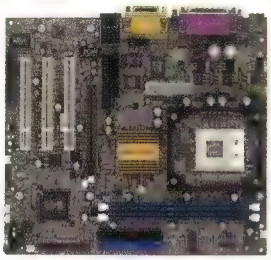
DDR333 Solution



L4S5M

- SiS645 & SiS961
- Socket 478
- 2 DIMMs, UP to 2GB, DDR333
- 3 PCI, 1 AGP, 1 CNR
- AC97 Audio Codec
- UltraDMA 66/100
- microATX Size

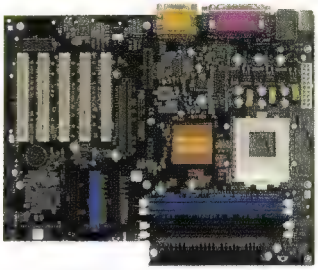
SiS650 Solution



L4S5MG

- SiS650 & SiS961
- Socket 478
- 2 DIMMs, UP to 2GB, DDR333
- 3 PCI, 1 AGP, 1 CNR
- AC97 Audio Codec
- VGA Embedded
- UltraDMA 66/100
- microATX Size

SiS735 Solution



K7S5A

- SiS735 Chipset
- Socket 462
- 2 DDR DIMMs or 2 DIMMs, UP to 1GB
- 5 PCI, 1 AGP, 1 AMR
- AC97 Audio Codec
- UltraDMA 66/100
- ATX Size

Sydney: 95 Derby St., Silverwater, NSW 2128
PH: (02) 8748-8888 FAX: (02) 8748-8800

Melb: 7/2 Sarton Rd., Clayton, VIC 3168
PH: (03) 9560-7188 FAX: (03) 9560-7288

PROTAC®

Web Site: www.protac.com.au
Email: support@protac.com.au

windows xp

Compress those files

BY ELIAS PLASTIRAS

Like Windows Me before it, Windows XP provides services for compressing your files so you don't have to go to the trouble of installing a third-party utility such as WinZip. In fact, Windows XP provides a couple of methods for this disk space saving task: one is the Compressed Folder option (which can also be found in Windows Me), and the other is NTFS compression which, as its name suggests, will only work on drives that utilise this file system. Both have their pros and cons.

COMPRESSED FOLDERS You can create Compressed Folders under either FAT32 or NTFS file systems (they are simply .zip archives) and doing so is quite simple. If you have a number of files that you want to zip up, the first step is to select them. The next step is to right-click them and select *Send-To-Compressed (zipped) Folder* (as in FIGURE 1). This will create a new folder (featuring a zipper icon) in your current directory containing these files. If you want to add more files to the folder, you can simply drag them into it.

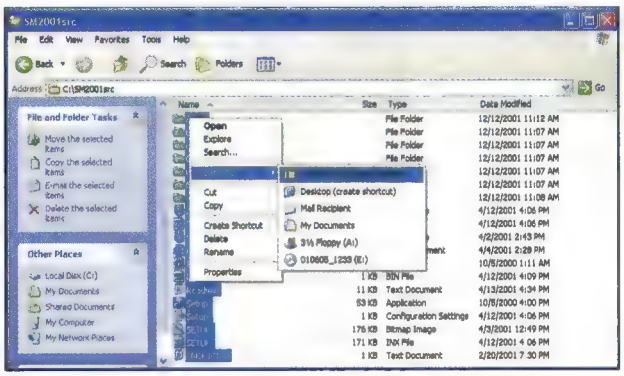


FIGURE 1: Compress folders via the Send-To menu.

Unfortunately, this process won't move the old files, and makes copies instead. You can manually move files into compressed folders by holding the <Shift> key as you drag them.

Files inside a compressed folder can be viewed but not modified. If you need to modify any of your compressed files you will have to first decompress them, which can be done either by copying or moving them to a temporary location. Alternatively, you can just launch the file and work on it; when it comes time to save the file, you will have to select the *Save As* option to save it to a different location because you can't save directly into a compressed folder.

TIP: you can password-protect compressed folders by going to the *File* menu and selecting *Add a Password...*

NTFS COMPRESSION To use this compression method your hard drive must already be utilising the NTFS file system. It is a far superior compression method for ease of use and convenience, and can be applied very easily to both individual files and folders. To compress a file or folder, right-click it and select *Properties*. From the *General* tab click the *Advanced* button and in the ensuing screen place a check in the box next to "Compress contents to save disk space" (as in FIGURE 2). Click *OK* and then *Apply*.

At this point, if you are compressing a folder that has files and sub-folders in it, you will be asked whether the changes should apply to all files and subfolders or just this folder — choose the former. Click *OK* twice to exit the Properties dialogue box.

When you compress files using this method, you can work on them as if they were regular files. Windows XP will compress and decompress them transparently so you are able to save files directly into NTFS compressed folders and don't need to create duplicate files to work on. If an uncompressed file is moved to an NTFS compressed folder, it will automatically become compressed too.

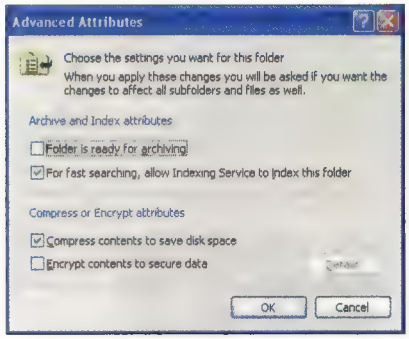


FIGURE 2: Enabling NTFS compression.

NTFS compressed folders can be distinguished from regular folders in Windows Explorer by their colour. All your regular folder names will be written in black text, but NTFS compressed folders will sport blue lettering.

TIP: to distinguish between regular and NTFS compressed folders, go to *Tools-Folder Options*, click on the *View* tab and make sure a tick mark is placed next to "Show encrypted or compressed NTFS files in color". ■

Pin it!

If you want to efficiently create quickly reachable shortcuts to your installed programs but can't be bothered dragging and dropping your way through to the Start menu or your Desktop, don't worry — there's an easier way.

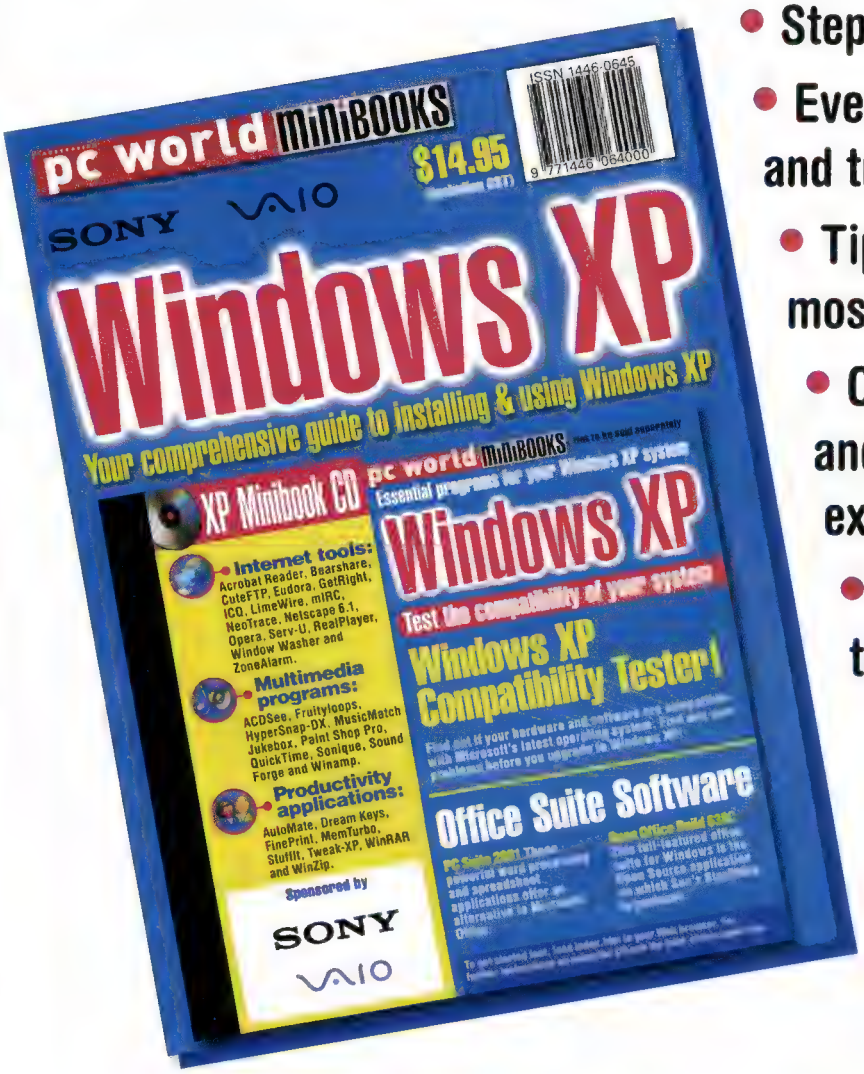
Navigate to the location of your program, right-click it and select the *Pin to Start Menu* command. This will automatically place a shortcut to that program in your Start Menu above your most recently used list. If you ever want to remove the shortcut, simply right-click it and select *Un-pin from Start Menu*.

This command only appears when you have the XP-style Start Menu selected. If you have the classic style instead, you can change to the XP style by right-clicking on the *Taskbar*, then *Properties*, then the *Start Menu* tab and placing the radio button next to "Start Menu".

ONLY $14.95

The PC World Windows XP MiniBook and CD

All the information you need to evaluate, install and use Windows XP, including:



- Step-by-step installation guide
- Everything you need to run and troubleshoot Windows XP
- Tips on how to make the most of upgrading to XP
- Connectivity, multimedia and security features explained
- How-tos and advanced topics
- **PLUS** A bumper batch of software on the cover CD to get you started!

Available at all newsagents NOW!

To buy your copy visit https://secure.idg.com.au/xp
or phone 1800 248 811

Utilising USB modems

BY RODNEY GEDDA

Universal Serial Bus, or USB, is fast becoming the standard in external device interfacing and, as a result, a range of USB modems is now available on the market. A key benefit of external USB modems is that they are bus powered and hence don't require an additional AC power supply. The good news for Linux users is that USB modems are supported by the kernel and you don't need to install third-party software or reboot your computer to get one working.

REQUIREMENTS The first requirement is that the modem must comply with the Communication Device Class Abstract Control Model (CDC ACM) USB sub-class. There is a generic ACM driver in the kernel, which is used for modems and ISDN terminal adapters that conform to this specification. Therefore, make sure that the modem is ACM-compliant before you buy, and keep in mind that some USB modems are not ACM-compliant and have only Windows drivers. The Netcomm Roadster II 56 USB is a popular modem that complies with ACM.

The Netcomm Roadster II 56 USB is Linux-friendly.

The second major requirement is a Linux kernel version with USB support. The USB sub-system was developed and introduced with the 2.4 series and has since been back-ported to 2.2.18 and later kernels. A 2.4 series kernel is recommended to ensure that you have the latest drivers and features.

INSTALLING THE MODULES The great thing about using USB devices with Linux is that you can take advantage of the kernel's "hot plugging" ability. Hot plugging will load the appropriate module(s) upon detection of a device. If your distribution supports this, just plug in the USB modem and the ACM module will be loaded. Setting up hot plugging is beyond the scope of this article but Red Hat 7.2, Mandrake 8.1 and SuSE 7.3 all support it. If the modem lights flash and executing the # **lsmod** command reveals an ACM module, then your modem has been installed by hot plugging and you can skip ahead to the section on using the modem:

MANUAL INSTALLATION You will need at least three kernel modules loaded to get a USB modem working. They are usbcore — the base USB module; usb-uhci — the Universal Host Controller Interface (UHCI) root hub driver used in most Intel-based systems (use usb-ohci if yours is an Open HCI); and ACM — the Abstract Control Model driver. If these didn't come pre-compiled then re-compile your kernel with these drivers as modules.

Before you load the modules, as root, create a device node (if not already there) that will be used by the acm driver:

```
# mkmod /dev/usb/ttyACM0 c 166 0
```

Then do:

```
# modprobe -a usbcore usb-uhci acm
```

This will load all the required modules. In order to see your USB device details, mount the USB device file system with:

```
# mount -t usbdevfs usbdevfs /proc/bus/usb
```

And then, with the modem plugged in, you can see it and the root hub's specifications with:

```
# cat /proc/bus/usb/devices
```

USING THE MODEM With all the USB modem drivers loaded, you are now ready to connect to the Internet. Insert (or replace) the device location of your USB modem — /dev/usb/ttyACM0 (Red Hat 7.2 uses /dev/input/ttyACM0) — into your Internet connection program or script. If you are accessing the Internet as a regular user, make sure all users can read and write to the device. As root, type in the following:

```
# chmod a+rw /dev/usb/ttyACM0
```

If you are accustomed to using /dev/modem then delete the old link and create a new one with:

```
# ln -s /dev/usb/ttyACM0 /dev/modem
```

mac OS

Using iTunes 2

BY DANNY ALLEN

Late last year Apple updated its popular iTunes jukebox software to version 2 and made the update available as a free download from **www.apple.com.au**. New features in iTunes 2 include a 10 band equaliser, MP3 burning capability, built-in crossfading between tracks, increased burn times and support for external CD-RW drives. iTunes 2 also features the ability to automatically synchronise quickly and easily with Apple's 5GB personal MP3 player — the iPod — thanks to the latter's FireWire interface.

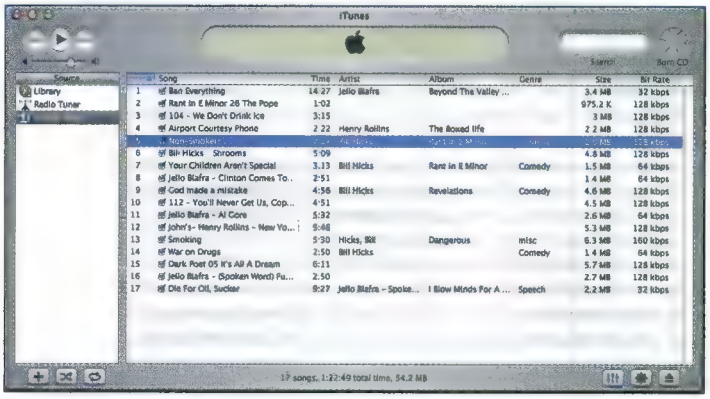


FIGURE 1: iTunes 2 playlist in action.

CREATING A PLAYLIST After starting iTunes 2, the first thing you might like to try is creating your own playlist. You can do this by selecting *File-New Playlist* or by using **<Cmd>-N**. In the left window of iTunes 2, titled Source (FIGURE 1), enter the name of your playlist — I called mine Spoken Word, as that described the contents of my playlist. You can delete a playlist at any time by selecting it and pressing **<Del>**. To add MP3s to your list, simply select your playlist and then select a group of MP3 files, then drag them into the right playlist window of iTunes 2 (FIGURE 1).

Unless you specify otherwise, iTunes 2 should then advise you that a link to the MP3 files will be included in your playlist, but the files themselves will not be moved or copied. If you move the files to a different location, iTunes 2 won't be able to find them, and therefore won't be able to play them, either. If you want to copy the files to your Mac's hard drive, your best bet is to put them into the iTunes Music folder located inside the Documents folder that you can reach by clicking the home icon from a Finder window.

Now that your MP3 files are in your playlist, going to *View-Options* (**<Cmd>-J**) will allow you to select more information to be displayed in the playlist about each file. For example, I selected to also display file size and bit-rate. At the bottom centre of iTunes you are given indicators of your playlist's total number of tracks, playing time and total size. You can arrange the playing order of your playlist by simply dragging and dropping.

PLAYBACK FEATURES AND INTERNET RADIO To play a track, double-click on its name in the playlist. Playback and volume controls are found in the top left of iTunes 2, and the track's elapsed time and quick seek bar are at the top centre of the program. The search field in the top right of iTunes 2 allows you to hunt through your playlist quickly and easily by simply typing in the name of an artist or track. You don't even need to press <Return>, as each letter you type will further narrow what you're looking for.

In addition to your customised playlists, the left-hand Source window is where you access Audio CDs, the iTunes 2 Library and the Internet Radio Tuner.

By clicking on *Library* you can view a list of all the tracks that your individual playlists use. Clicking on the *Browse* button in the top right of iTunes 2 will allow you browse through artists and albums, or to search for tracks. You can combine existing playlists into new playlists by clicking on a track name from the Library and dragging it into a new playlist.

The Radio Tuner is just as easy to use. Make sure you're connected to the Internet, click on *Radio Tuner*, select a music genre and 'station' from the list, and you're set.

If you want to equalise the sound, the left-most icon at the bottom right of iTunes 2 (or **<Cmd>-2**) will bring up the equaliser — just make sure 'On' is ticked. Immediately to the right of the equaliser icon is the visualisation icon; click this or use **<Cmd>-T** to begin graphical visualisations to accompany your music.

RIPPING AND BURNING As mentioned, when you place an audio CD in your Mac, the audio CD option will appear in the Source window. From there, you can play back a music CD just like an MP3 playlist. If you're connected to the Internet, you can get track names from the CDDB by selecting *Get CD Track Names* from the Advanced menu. Before you rip an audio CD to MP3, check which options you have selected from Preferences under the iTunes menu, or access Preferences with **<Cmd>-Y**. The importing tab allows you to select the bit-rate of the MP3s you create.

To import a track press *OK* (if you're still in Preferences), select *Audio CD* from the Source window and then click the *Import* button in the top right of iTunes 2. The MP3 files you create will be added to your Library.

Provided you have a CD burning drive that iTunes 2 can recognise, burning is fairly straightforward. The CD Burning tab in the iTunes preferences allows you to select Audio CD or MP3 CD. This done, you should only need to select the files you wish to burn and click the *Burn CD* icon from the top right of iTunes 2. ■

EZ-Mixer 1.0 SE

BY DANNY ALLEN

IK Multimedia (**www.ikmultimedia.com**), the people behind the excellent T-Racks 24 mastering software and the very fun-to-use GrooveMaker, has provided Australian PC World with a free cut-down version of its MP3 mixing software, EZ-Mixer ($US39.95 for the full version). Emulating a two-track DJ mixer complete with all the necessary features to produce a live mix, EZ-Mixer should work across all versions of Windows (a Mac version is available for download) but please be sure to install QuickTime from the cover CD before running the program. EZ-Mixer SE has all the features of the full version, but is able to load only two songs and export/mix audio files only in QuickTime formats (no MP3 or WAV output).

MIXING THE EZ WAY EZ-Mixer isn't going to replace trusty Technics SL-1200 turntables and a mixer anytime soon, as far as a hands-on pro-quality mixing goes, but it can be quite fun to combine your MP3s and save the results. The following basic steps should help you get started.

Step 1 Fire up EZ-Mixer and click the circular *Load* button in the bottom left of the program. Browse to a directory on your hard disk containing WAV or MP3 files. Select a file and double click it. The song should now appear in the far left window of EZ-Mixer, the Playlist. In the SE version of EZ-Mixer you can only add two songs (instead of 25) to each playlist bank. However, you can use the A, B, C and D buttons to add two songs to each lettered bank. When a song in the playlist is highlighted, it is selected. The backspace key will let you delete a selected track from the playlist, should you wish. Playlists can be saved with the Save button next to the lettered playlist bank buttons. To begin with, just add two songs to bank A.

Step 2 Select the first song in your playlist and click on the *>1* button to send the song to mixing track one. The song should begin playing automatically. Do the same for the second song in your playlist, using the *>2* button this time to send it to mixing track two; it should also begin playing straight away. Using the blue volume knobs in the centre of each track, click and drag both volumes down to zero. You might notice that the player head slider (POS) above each track will move as each song is playing. You can skip to any part of the track by clicking and dragging on this. You can also nudge the track forward or backwards to help sync beats by using the < and > buttons.

Step 3 Raise the volume in track one (left side) to maximum and turn down the volume in track two (right side).

Beatmix using EZ-Mixer's visual aids.

Step 4 Using the left mouse button, click track one's large TAP button at least four times in time with the song's beat to detect the song's beats per minute (BPM), or simply use the < and > BPM buttons to be more exact if you already know the song's tempo.

Step 5 Click on track one's *Save* button to save the BPM settings for that song. Mute track one, and raise the volume of track two to maximum.

Step 6 Repeat STEP 4, this time applying the changes and settings to track two. Next, turn down the volume of track two and then unmute track one. Click on the *Adapt* button in track two to change track two's BPM to be the same as that of track one. Now you're ready to mix.

Step 7 Click on the downwards-pointing cross fader arrow in track one. You'll notice that the upwards-pointing cross fader arrow in track two will also automatically be selected.

Step 8 Using the beat indicator display in the upper right of EZ-Mixer (the two blue bars) as a synchronisation guide, and track two's position nudging buttons (< and >), try to sync the two tracks together. When you think you're close enough and you feel that it's the right part (perhaps a quieter, less complicated segment) of the track to do so, slowly bring up the volume of track two. The volume of track one will automatically adjust downwards, thereby mixing the two tracks together. You can even do this automatically, using the auto mix button on the far right.

TIP: These automation tools can sometimes be a bit clumsy, so I personally found it best (and more fun) to not use the auto-cross faders from Step 7 and just do it myself.

Step 9 Try experimenting with each track's speed slider and bass and treble settings. To record your mix, just press the record button in the lower left of the program. If you want to get tricky, you can adjust the program's preferences from the Prefs button.

If this fairly basic mixing program has piqued your interest in mixing MP3s on your computer, check out **www.mp3machine.com/win/MIXING-DJ** for information on other software that may further meet your needs. ■

graphics

Scanning and resolution

BY SCOTT MENDHAM

Despite the rise of digital cameras, people are still needing to scan images onto their PCs. Scanning the image will enable it to be sent to other people, digitally restored or preserved to prevent further degradation. If you can get the scanning resolution right, then this will make further manipulation of the image much easier.

When choosing the best resolution, it can be a little tricky trying to find the right balance between file size, scanner resolution and current system resources. These choices are made more complicated by two misconceptions — the first is resolution of the scanner.

SCANNER RESOLUTION Most scanners ship with two types of resolution: optical and software. The optical resolution is based on the mechanics of your scanner. The more precise the components, the greater the resolution that a scanner can achieve. Most new scanners have an optical resolution of 600x600dpi (dots per inch) or higher.

Even though a scanner may have the mechanics to scan at 600x600dpi, it is not unusual for it to be promoted as something similar to 2720x2720dpi. This can confuse people, as this 'improved' resolution is performed by the scanner's software and has no direct connection with the mechanics of the system (it is also called 'interpolation'). The bottom line is that interpolation rarely offers any practical improvement to an image. It can also generate ridiculously large files and it is doubtful that any printer could print a file at a resolution of 2720dpi (in most cases, the extra data that was created by the scanner software would be discarded by the printer and the same results could be achieved with a much lower resolution image). Also consider that a single 8x10in image at 2720dpi would bloat to about 1.5GB (yes, this is 1500MB).

PRINTER RESOLUTION Now it's time for the confusing aspect of printer resolution versus scanner resolution. These two values are not equivalent — having a 1200dpi printer does not mean your scanned images need to be 1200dpi. In fact, most image files only need to be half the resolution (or less) of the printer. So, if your printer can output 1200dpi, then your file only needs to be scanned at a maximum of 600dpi.

This sounds confusing and counter intuitive to most people. Why does the printer need to have a higher resolution than the file it is printing? In very simple terms, a printer has to use a group of smaller dots to accurately recreate one dot from a graphics file — to print these smaller dots will mean that the printer resolution must be higher.

The next point to consider is what you will do with the image. If you intend to manipulate a photograph once it is scanned, then a higher resolution is more desirable. Once you are finished editing the file, then you can decrease the resolution ready for print.

When processing a large collection of photographs, you may need to consider the time factor for scanning, loading and saving each picture. Large, high-resolution pictures can take longer to manipulate. Finally, don't overlook the type of scanner connection to your PC. Parallel port scanners will take an eternity to scan a large image, but a scanner with USB or SCSI card will make the process much quicker.

The above picture of Sydney's Central station is typical of a photograph needing restoration and preservation. It is quite small, at just 10x7cm, and when scanned at 600dpi the image is around 10MB as a TIFF file. However, converting the file to a JPEG squeezed it down to just 400KB.

WHICH RESOLUTION TO USE? If this discussion hasn't made you want to chuck out your scanner, then here is a rough guide to resolutions. Assuming you have at least a 200MHz PC with 64MB of RAM, then scan your images at 600dpi (if the maximum optical resolution of your scanner is less than 600dpi, then use its maximum setting). When scanning pictures above 8x10in, drop the resolution to 300-450dpi. After editing the image, you can reduce the resolution to around 300dpi. It is also a good idea to send test images to the printer, to see if your desired resolution will provide acceptable results. Saving the final image as a JPEG is also a compact way of storing images (do not use the GIF format, as this ruins the quality of most photographs). ■

html

Troubleshooting

BY HEIDI WOOF

An important part of coding is error checking. This month, we examine browser-related problems and also introduce HTML Validator Lite, which is a troubleshooting program that can identify syntax errors.

NETSCAPE VS INTERNET EXPLORER You may have noticed inconsistencies in the way different browsers interpret Web pages. We'll focus on the two most popular, Internet Explorer (IE) and Netscape (NS). Other browsers may encounter similar problems, but, in most cases, consideration of the issues that follow should eliminate comparable errors across the board.

When creating a Web site, you must identify your testing parameters: whether to test the site at one or both popular screen resolutions (800x600 or 1024x768); whether to test the site with various text sizes (for IE go to *View-Text size*; for NS go to *View-Increase Font*); and, most importantly, which browsers and browser versions to accommodate.

When considering these points, the determining factor should not be which settings you personally prefer, rather, it should be which settings the majority of your viewers use. Some people code their sites specifically for IE, or only for Netscape. This is fine, as long as you realise that a significant percentage of the Internet population may consequently view the site in a less than perfect state.

Let's assume the decision is to code your site for both NS and IE (generally accommodating browser versions 4.x upwards).

Closing tags. By and large, when IE encounters a tag that is not closed off it will do it itself. Netscape, on the other hand, is not so forgiving, and leaves the tag open. View the following code in both IE and NS and notice the difference created by an absence of </TABLE>.

```
<HTML>
<HEAD><TITLE>Tags</TITLE></HEAD>
<BODY>
<TABLE border="1">
 <TR>
     <TD> one </TD>
     <TD> two </TD>
 </TR>

</BODY>
</HTML>
```

Background colours and graphics in tables. Limit your use of background graphics and colours in tables, especially when using cellspacing. By looking at FIGURE 1, you will notice that NS re-starts the graphic for each TD, and omits the background for cellspacing. IE, though, continues the picture across the table.

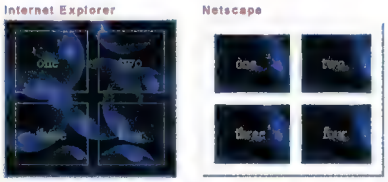


FIGURE 1: Treatment of backgrounds in tables varies between IE and NS.

File name conventions. A good rule of thumb is to not use spaces in file names, whether they are graphic or HTML files; Netscape has been known to get confused. Take the following, for example:

```
<IMG src="my dog.gif" alt="puppy dog">
```

Netscape could see this and try to find a file called 'my', interpreting the space as an indication that it has reached the end of the value name. Consequently, the graphic may not display. This problem is not consistent, but it's best to replace the spaces in file names with underscores — my_dog.gif — or, alternatively, omit the space altogether, as in mydog.gif.

HTML VALIDATOR LITE This freeware program greatly assists you with troubleshooting, and we have included it on this month's cover CD. When using this software, the first thing to do is close off any other editing instances of the file. Otherwise, you may save changes in Validator, go back to your open Notepad file, save it, and thereby accidentally save over any changes you made in Validator.

Click the red 'H' to calculate the errors. In FIGURE 2, you will see three windows. The top is your code (which you may edit here); the bottom two are descriptions of the specific errors. The left is a list of all errors, the right is an easier-to-read description of the selected mistake.

When you highlight an error (bottom left window), the cursor is taken to the specific place in the file. In FIGURE 2, it is placed on the opening TABLE command, showing that this needs to be closed off.

It is a good idea to fix errors in the order that they appear, as they may have a cumulative affect. For example, <img src="dog.gif> would cause many errors because of the lack of a closing quote. As soon as this error is fixed, however, most of the other problems vanish. ■

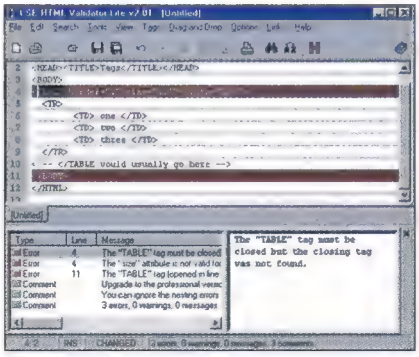


FIGURE 2: HTML Validator Lite will smooth the troubleshooting process.

php

Dealing with databases

BY GAVIN SHERRY

Over the last few months this column has looked at building a basic address book database system. Address Book 1 stored its data in a flat file format — that is, plain text. The problem with storing data like this is that it is inefficient to search the entire address book line by line to locate a particular entry. Moreover, to search multiple fields of an entry — such as last name and suburb — required additional code.

Database systems attempt to address this problem by storing data in mathematical patterns to speed retrieval. They also offer simple interfaces to these (quite complex) underlying algorithms so that the programmer does not need to worry about the best way to store and retrieve data for an application. As such, the programmer can work on developing the application without worrying too much about the data itself.

PHP includes interfaces for at least 20 different databases, including embedded databases such as dbm and Berkeley DB; popular commercial SQL databases including Oracle, IBM DB2, MS SQL and Sybase; as well as several sophisticated open source SQL databases including PostgreSQL and MySQL.

Embedded databases are a good place to begin when learning how to build database-backed applications. They are 'embedded' because they are accessed from within the application, unlike many SQL databases, which require network connections.

PHP provides a Database Abstraction (DBA) layer for several database systems, including dbm, ndbm, gdbm, Berkeley DB2 and DB3 (**www.sleepycat.com**) and cdb. This interface allows PHP developers to build basic data stores for their PHP applications with little fuss.

UNIX-style operating systems usually ship with at least one of the supported databases; alternatively, the Berkeley DB3 source code has been included on the cover CD. PHP is not built to support embedded databases by default. Information on how to do this can be found at **http://download.php.net/manual/en/ref.dba.php**.

APPLICATION This example (see box at top) creates a database and stores some information in it.

When accessed from a PHP-enabled Web server, this script creates a Berkeley DB3 database with the function dba_open(). This function accepts three arguments. The first is the full path to and filename of the database; in the example, this is set to /tmp/hereshow.db. The second argument is the mode in which to open the database; we have used the mode "n". This means that the database will be created if it does not exist or deleted and recreated if it does exist. It is then opened with read and write access. The third argument is the database driver to use — in this case, db3 means Berkeley DB3 (this script will work with all of the supported databases).

A full list of database modes and drivers can be found at **http://downloads.php.net/manual/en/ref.dba.php**.

```
<HTML>
<BODY>
<?
$id = dba_open("/tmp/hereshow.db","n","db3");
if(!$id) {
        exit("Could not open database /tmp/hereshow.db");
}

$key = time();

if(!dba_insert($key,"Time in seconds",$id)) {
        dba_close($id);
        exit("Could not update database /tmp/hereshow.db");
} else {
        echo "Successfully updated database with key = $key<br/>";
}

if(($value = dba_fetch($key,$id))) {
        echo "Found key $key with value $value<br/>";
} else {
        echo "Could not find key $key<br/>";
}

dba_close($id);
?>
</BODY>
</HTML>
```

The dba_open() function returns a database handler $id which is used in conjunction with the other dba functions. In the example script, if $id is set to false, dba_open() could not open the database and the script fails.

If $id is valid, the script attempts to insert some data into the databases with the function dba_insert(). This function takes three arguments: the first is the 'key', the next is the value of the key and the third is the database handler.

A database key is an identifier that can be used by the application to locate stored information. In the current example, the script is inserting only trivial data for the key. The power of key-based searching reveals itself when you consider the embedded database as a solution to a problem with Address Book 1. When used to search the data file, the script tested every line to see if it held a last name — more than 90 per cent of the time, it didn't.

Replaced with an embedded database system, the last name could be made the key to the database while the rest of the data could be inserted as the value (the second argument to dba_insert()) related to that key. Better still, by default the DBA layer creates B-Tree structured databases — the performance of which greatly outstrips that of linear searching.

The third argument to dba_insert() is the database identifier.

Finally, the last block of code in the example retrieves the data written to the database with the key $key. If the key is found (which it always should be in this example) then the data is returned to the user; otherwise, an error is raised. Test this by altering the value of $key after the data is inserted in the database. The script will return an error.

After this, the database handler is closed. As with fopen(), this is necessary in order to save data written to the database.

Next month, we will look at redesigning Address Book 1 to use the DBA layer. ■

OPERATING SYSTEMS

WINDOWS (all versions)

Perform tasks on shutdown

You can use Windows' Start-Programs-StartUp folder and Task Scheduler to launch applications or perform tasks automatically at specified times — except when it's time to shut down your computer. If you'd like to clean up the day's temp files or perform some disk maintenance when you turn off your computer, ShutdownPlus can help.

This utility is fully featured and allows you to launch multiple tasks at shutdown, and in Windows 98 and later versions it replaces Windows' Shut Down dialogue box with its own. This means you don't have to launch a separate application to exit.

Upon exiting, you have the option of clearing your hard disk of temporary files and deleted files (as in FIGURE 1). With the built-in task scheduler, you can pick a time and day of the week to run the scan disk and defrag utilities. Also of benefit is the option to automatically shut down the computer after a predetermined amount of idle time, and users can even be limited to the amount of time they're allowed to use the computer.

ShutdownPlus comes in personal ($US30) and professional ($US40) versions. You can download it from the vendor's Web site at www.wmsoftware.com and registration is required. The shareware version will give you 60 days to evaluate the program.

– *Scott Dunn*

Time-stamp your notes

Notepad is fairly basic, but it can do some tricks that few people know about. For instance, you can use the program to keep time- and date-stamped notes, such as records of phone calls, and it will do the stamping for you. Create a file in Notepad that starts with the text string .LOG (yes, it must start with a full stop and be entirely uppercase). This must be the only text on the first line of the file. Now, every time you load that file, Notepad will insert the time and date at the bottom of the text.

– *Lincoln Spector*

LINUX

Disk partitioning

Q I have made the following disk partitions with Fdisk on my blank 20GB disk: 1. Primary partition of 5GB (I'm going to install Windows Me on the C drive); 2. Extended partition of 10GB; and 3. Logical partition above the extended partition as D and E drives of equal size.

How can I partition my remaining space for Linux, including a swap partition of 256MB? The only disk partition software I have is FIPS from either Mandrake 8.0 or Red Hat 7.1.

– *Charles Handaya*

A It seems as though you have already done all the hard work when it comes to making space for Linux. Most people who have Windows as the only operating system installed on their computer need to use FIPS (First Interactive non-destructive Partition Splitter) to resize their existing Windows partition without destroying their data. In your case, the free space that you have will be recognised by both the Red Hat 7.1 and Mandrake 8.0 partitioning programs during installation.

Red Hat's partitioning program, Disk Druid, will tell you the physical size of the disk (in your case, 20GB) and the size of any existing Windows partitions. With Disk Druid it is simply a case of selecting Add to create a new partition from the empty space. If you would like to make a swap partition of 256MB, enter the size and make sure you define the partition type as "Linux Swap". Your next step is to add a Linux native partition, which can be specified to be the size of the remaining free space on the disk. Also, specify the mount point for the Linux native partition as / or "root".

If you choose to install Linux Mandrake, partitioning is just as easy. You will arrive at the Mandrake partitioning tool, DiskDrake, early in the installation and all the partitions on the disk will be displayed as bars across the screen. Simply select the free space (shown as a white bar) and then add a Linux swap partition of 256MB. Then all you need to do is add a Linux native partition with the / (root) mount point and proceed with the installation.

In any case, it is better to install Windows before Linux, as installing Windows will overwrite your Master Boot Record (MBR) and hence LILO (LInux LOader), if it is installed. Installing Linux after Windows will allow you to boot to either operating system. ■

– *Rodney Gedda*

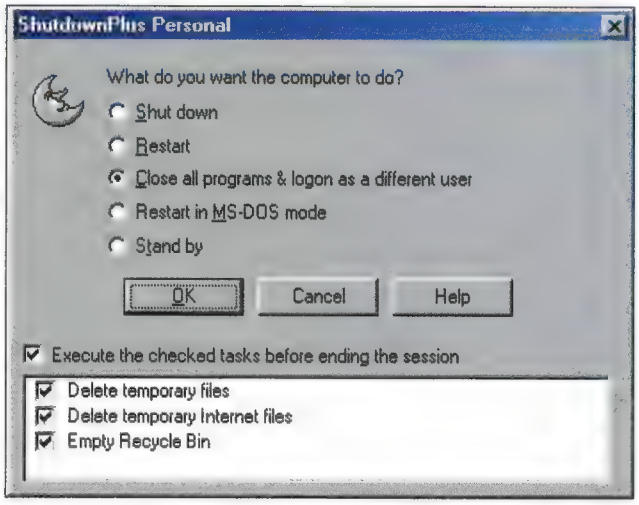


FIGURE 1: With the ShutdownPlus utility, you can make the most of your PC's shutdown.

OFFICE APPLICATIONS

OFFICE XP

Shortcuts for Word and Outlook

I recently found myself editing a really messy document. You know the kind: not only was it loaded with spelling and grammatical errors, but I also had to contend with extraneous formatting codes because it wasn't created in Word. I had to dump all of those codes and issue about a dozen Find and Replace commands before I could get down to the business of editing the document.

In the course of editing this document, I had to bring out the heavy artillery: Word editing shortcuts. Although these shortcuts aren't new to Office XP, they're as useful as ever. Here are some of my favourites.

SELECT A COLUMN OF TEXT You don't often need to select a column of text in Word — but when you do, you'll be frustrated if you don't know the trick. If you've ever opened a long document with unwanted full stops or other characters at the beginning of each line, you know what I'm talking about. You can select a column of text by holding down the **<Alt>** key while you click and drag to extend the selection. Once you've made your selection, you can send that column of text to perdition's flames by pressing the **<Del>** key.

TOGGLE THAT CASE Some people Tend to use UpperCase and lowercase Creatively. Some misguided folks like to emphasise Words they consider Important. Others like to SHOUT. If it just happens once in a while in your document, it's no big deal to change it manually. If it happens in a long string of text, Word comes to the rescue with its Change Case command. When you format the text and choose *Format-Change Case*, you can change the case to uppercase, lowercase, title case, sentence case, or reverse the text from its current case. Handy enough. But when you have a document loaded with case errors, you don't want to fool around with menus and dialogue boxes. Instead, select your text and press **<Shift>-<F3>** until you get the case you want. This key combination toggles among upper, lower, and title case, and it's a handy little devil.

FIND AND REPLACE QUICKLY Find and Replace is without a doubt one of the handiest word processing features. Not only can you quickly and easily change every instance of a word or phrase to something else, but you can also replace formatting, special characters, and even blank spaces. (I love Find and Replace so much, I find myself longing for it in other areas of life besides computing, but that's another matter entirely.) To quickly fire up the Find and Replace dialogue box without taking your fingers off the keyboard, press **<Ctrl>-H**. (<Ctrl>-R right-aligns the current paragraph, so you'll have to think of a good mnemonic for <Ctrl>-H.)

As I mentioned, Find and Replace is handy for much more than replacing an instance of a word or phrase. For instance, some writers haven't trained themselves away from the old typewriter custom of pressing the spacebar twice after each full stop. With Find and Replace, you can quickly change all instances of double spaces to single spaces. Just enter two spaces — hit the spacebar twice — in the "Find what" field, enter one space in the "Replace with" field, and click *Replace All*.

Another shortcut I find handy is to double-click anywhere inside the left side of the Status Bar (at the bottom of the Word screen, the bar that displays Page, Sec, Ln, and so on). This opens the Go To dialogue box, with its handy pals Find and Replace just a Tab click away. And if you want to keep your hands on the keyboard, use **<F5>**.

E-MAIL WITHOUT MOUSING AROUND This column has inspired you to write me about your favourite shortcuts so I can share them with other readers, right? And in the spirit of maximising your time savings through keyboard shortcuts, you want to compose the entire message without using the mouse at all.

With your Outlook Inbox on screen, press **<Ctrl>-N** to start a new message. Type **pcworld@idg.com.au** in the To field, and press the **<Tab>** key twice to move to the Subject field. Type "My goodness, you are a charming, sophisticated, and handsome devil!" (or other appropriate subject) and press **<Tab>** to move to the body of your message.

Now type your message, including dozens of handy tips and shortcuts other readers will enjoy. Finally, press **<Alt>-S** to send the message. No mouse required!

One last shortcut: once you've started your e-mail message by pressing **<Ctrl>-N**, you can open your address book by pressing **<Alt>-Full Stop**. With the address book open, press the **<Down Arrow>** key to move down your list of addresses. To add a recipient, press **<Enter>**. When you're finished choosing recipients, press **<Enter>** again to return to your message. And you did it all without your hands ever leaving your keyboard! ■

– Jim Welp

Handy Keyboard Shortcut Recap

Word Shortcuts

- **Alt-click 'n' drag:** selects a column of text
- **Shift-F3:** toggles the case of selected text
- **Ctrl-H:** opens the Find and Replace dialogue box
- **F5 or double-click Status Bar:** opens Go To dialogue box

Outlook Shortcuts

- **Ctrl-N:** starts a new e-mail message
- **Alt-S:** sends the current message
- **Alt-Full Stop:** opens the address book

– Jim Welp

help screen

INTERNET

Quick and simple searches with Explorer

It's easy to get complacent about searching the Internet. After all, you can almost always find what you're looking for simply by heading over to Google (**www.google.com**) and typing in a few words. Internet Explorer's built-in search tools can make the task even less work, as long as you take control.

To display IE's Search pane, click the *Search* button in the browser's Standard Buttons toolbar (choose *View-Toolbars-Standard Buttons* if the button isn't visible). To see what's going on underneath Search's basic interface, click *Customize*. The resulting Customize Search Settings window shows the search sites IE employs when it searches for Web pages, addresses, and businesses (see FIGURE 1). Check the boxes to choose from an assortment of preselected search sites, and prioritise the sites by clicking the arrow buttons to move selected sites up or down the list. The same window also lets you control which search engine IE uses to search for terms you type into the browser's Address bar. Click the *Autosearch settings* button, choose an engine from the drop-down menu, and click *OK*. Now when you type a term into IE's Address bar and press **<Enter>**, the browser will use the search engine you selected, not the default one.

What's that you say? Google's not listed as a search engine option in the afore-mentioned windows? To remedy that, type **www.google.com/google.reg** in the browser's Address bar, and save the .reg file to a location on your hard disk for future use. Once it has downloaded, locate the file, right-click on it and select *Merge*. Click *Yes* at the ensuing dialogue box to add the Registry setting and, finally, click *OK*. This will replace the standard IE Search pane with the Google search pane. The Google pane supplants IE's Search Assistant; after installation, all IE searches will happen through Google, except for searches on terms you enter in the Address bar, which will continue to use the search service you chose when you customised your settings. If you want to revert to IE's own Search panel, enter **www.google.com/default.reg** to download and run the Registry script that puts it back.
– Scott Spanbauer

Get, set IE's Quick Search

The Quick Search tool, a component of Microsoft's Web Accessories for Internet Explorer 5, provides another cool way to search the Net. The 134KB Web Accessories download (available on the cover CD or from **www.microsoft.com/Windows/ie/previous/webaccess/ie5wa.asp**) includes utilities, menu bars, and tweaks geared toward power users and developers. Quick Search allows you to specify on the spot which engine you want to use when you enter a search term into IE's Address bar.

To specify a search engine, just precede your search term with a mnemonic code. For example, to search AltaVista for photographs of songwriter PJ Harvey, enter **av PJ Harvey photos**.

Google isn't listed among the Quick Search codes either, but that's okay because Quick Search is easy to customise. To add a code for Google, simply click the Quick Search button that Web Accessories added to IE's Links toolbar (if you can't see the Links toolbar, you can add it from *View-Toolbars*). Click *New* to add a new search shortcut, enter an appropriate code (goo sounds good to me), choose *Custom URL* from the Search drop-down list, enter **http://www.google.com/search?q=%s** in the URL field, and then click *OK*. Now when you enter **goo guava** into IE's Address bar, you'll see Google's fruity results.
– Scott Spanbauer

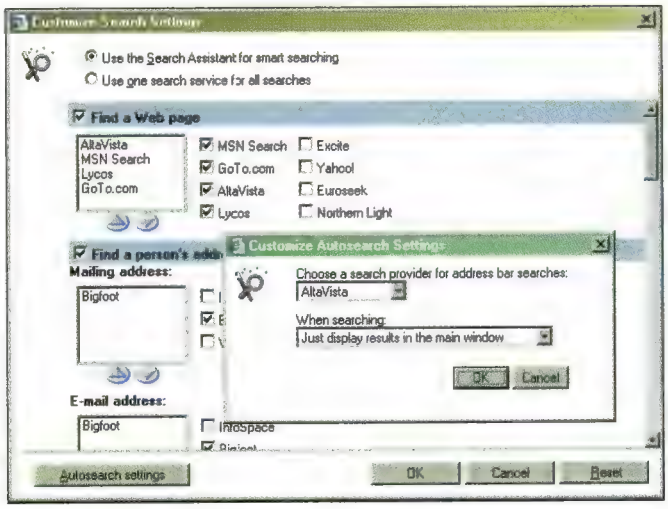


FIGURE 1: IE's Customize Search Settings feature lets you fine-tune your Internet searches.

Use Google in XP

Windows XP contains a glut of search engines among its search options — including Google — straight out of the box. First off, fire up the Search bar by hitting the *Search* button on the Toolbar. The left pane of your screen will now offer you a search bar as well as a search companion character (if yours is the dog, click on him and he'll start scratching himself). Before you do anything, click on the *Change preferences* link. You can choose your default search engine by clicking on the *Change Internet search behaviour* link, which will ask you how you want to search the Internet, and offer you a list of available search sites. Google is third from the top, so select it and click on *OK*. Now, every time you activate your Search bar, you will be going through Google.

Also, if the search companion is not your style, you can turn off the animated character from the main search screen. ■
– Elias Plastiras

HARDWARE

Get the most from your display and graphics card

When it comes to your PC's monitor, looks aren't everything — they're the only thing. Staring at fuzzy images and a flickering screen can lead to eyestrain, headaches, and general crankiness. Follow these steps to see the best your graphics card and monitor can show you.

To view your graphics card settings, right-click your Windows desktop and select *Properties*, or click *Start-Settings-Control Panel* and double-click the *Display* icon (see FIGURE 1). In the Settings tab of the Display Properties box, 'Screen area' sets your monitor's resolution, and 'Colors' determines how many colours it shows (also known as colour depth). 'Refresh rate' (reachable via the Advanced button and the Adapter tab) sets how many times per second the monitor redraws the on-screen image.

RESOLUTION Most PCs made in the past four years have a graphics card and graphics RAM that can support resolutions of at least 1024x768 pixels per inch; many graphics cards support resolutions up to 1600x1200. Budget systems often integrate their graphics processing onto the motherboard — a setup that provides less power than a dedicated graphics card.

In the Settings tab, slide the 'Screen area' bar to the far right to see the highest resolution your system supports. If the maximum setting is too low to meet your needs, you may be able to eke out a higher resolution by lowering the colour depth.

COLOUR DEPTH Click the pull-down list under Colors to see your colour-depth options at the monitor's current resolution setting. High Color (16-bit) provides 65,536 colours, and True Color (24-bit) offers over 16 million. Newer systems have a True Color (32-bit) option that also displays 16 million colours; the additional 8 bits define opacity, or the amount of transparency when layers of colour are combined.

Colour depth and resolution compete for the graphics adapter's screen memory, so lowering one may allow you to increase the other. But there's no hard-and-fast rule — you just have to experiment.

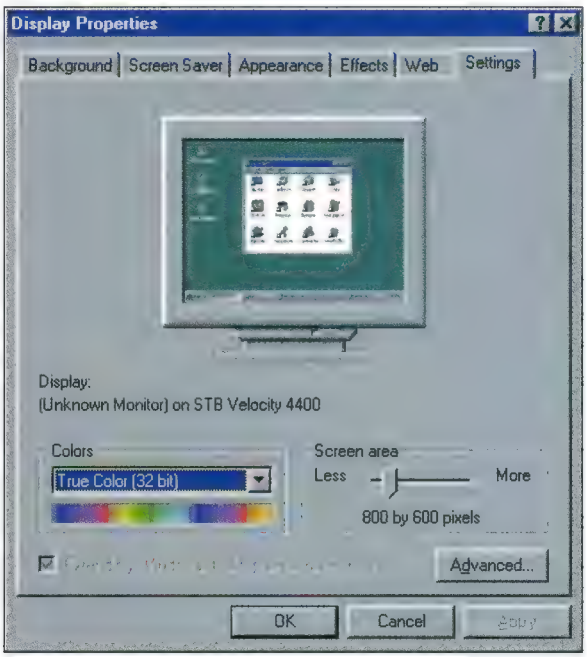


FIGURE 1: Adjust the settings of your monitor until you're happy with the result.

REFRESH RATE Some experts say your PC should redraw a CRT screen no fewer than 72 times per second (or 72Hz) to be comfortable, while others say the minimum rate is about 85Hz. Try different refresh-rate settings and see what works for you.

To set the refresh rate, click the *Advanced* button under the *Settings* tab of *Display Properties*, and then select the *Adapter* tab. If both your graphics card and your monitor support multiple refresh rates, you can select one from the drop-down list under 'Refresh rate'.

If the choice is set to Optimal, Windows has selected a refresh rate for you. Unfortunately, there's no easy way to know what that optimal rate is, and it may not be the highest setting available. If the Optimal setting doesn't produce a flicker-free screen, try your other choices.

– *Kirk Steers*

Get unbusy

Leaving your PC's modem connected when not in use blocks incoming phone calls and can leave your Internet account open to unauthorised use. To keep your phone line open and your network link closed when idle, have your modem shut down after a set time. Double-click the *Modems* icon in Control Panel, select *Properties*, and click the *Connection* tab. Check "Disconnect a call if idle for more than" and enter the length of time you want Windows to wait before closing your modem link.

– *Kirk Steers*

Designate your driver

Windows lets you choose only refresh rates that your graphics card and monitor support. If Windows can't detect your monitor — because Plug and Play isn't enabled or because the monitor doesn't support Plug and Play — it sets a safe but eye-exhausting refresh rate of 60Hz.

The name of your monitor is shown on the Settings tab in Display Properties under 'Display'. If it says 'Unknown Monitor', Windows couldn't find a driver for your monitor and likely set the refresh rate at 60Hz. To correct this setting, click the *Advanced* button at the bottom of the *Settings* tab, select the *Monitor* tab, and make sure the "Automatically detect Plug & Play monitors" box is checked.

Make sure you've downloaded and installed the latest driver for your graphics card. Graphics drivers are updated frequently, and installing the latest revision is often the cure for all kinds of graphics-performance and display problems. ■

– *Kirk Steers*

forté

SINCE 1987

www.fortecomputers.com.au

buy DIRECT from an established supplier

PROCESSORS

Intel Celeron 1000A (oem) (S370)	$191
Intel Pentium III-866 (S370)	$389
Intel Pentium III-1000/133 (S370)	$439
Intel Pentium 4-1.5GHz B ver Socket 478	$394
Intel Pentium 4-1.6GHz B Ver Socket 478	$437
Intel Pentium 4-1.7GHz B Ver Socket 478	$493
Intel Pentium 4-1.8GHz B Ver Socket 478	$591
Intel Pentium 4-1.9GHz B Ver Socket 478	$678
Intel Pentium 4-2.0GHz B Ver Socket 478	$1,047
AMD Duron 850 (oem) (Socket A)	$114
AMD Duron 900 (oem) (Socket A)	$139
AMD Duron 950 (oem) (Socket A)	$163
AMD Duron 1000 (oem) (Socket A)	$177
AMD ATHLON MP 1.2 (oem) 266 Socket A Palamino	$403
AMD ATHLON MP 1.5 (oem) 266 Socket A Palamino	$416
AMD ATHLON MP 1.6 (oem) 266 Socket A Palamino	$444
AMD ATHLON MP 1.8 (oem) 266 Socket A Palamino	$661
AMD Athlon XP 1500+ Socket A	$291
AMD Athlon XP 1600+ Socket A	$306
AMD Athlon XP 1700+ Socket A	$376
AMD Athlon XP 1800+ Socket A	$514

MOTHERBOARDS

Abit KT7A 200/266(VIA, Soc-A)	$240
Abit KT7A RAID (VIA, Soc-A)	$284
Abit KG7 AMD 761/686b 200.266DDR 4xDimm	$337
Abit BL7 Intel 845 P4-478 ATX AC97 sound	$323
Abit TH7 Raid Intel 850 Skt 478	$396
Abit TH711 Raid Intel 850 Skt 478 ATX	$502
AOpen MX3S (815, S370, M-ATX, All-in-One)	$286
AOpen AX3S (815, S370, VGA, Audio, U-100)	$261
AOpen AK33 (VIA, Soc-A, Audio, AGP 4x)	$185
AOpen MK73 Duron all in one (Vid, Audio)	$165
AOpen AK73 (KT-133A, Soc-A, ATA100)	$251
Asus P4B Motherboard	$372
Asus CUSI-M (SiS, S370, M-ATX, VGA, LAN, Audio)	$165
Asus TUSL2-C (815, S370, U-100, AGP Pro 4x)	$247
Asus CUV-4XD (VIA, S370, AGP Pro 4x, 133)	$390
Asus A7V-E-A (VIA, Soc-A, U-100, Audio)	$219
Asus A7V133-C (VIA, Soc-A, U100, No Raid)	$231
Asus A7V/266 (Soc-A, U-100, AGP Pro 4x)	$356
Asus A7A-E/266 (Soc-A, U-100, Audio, AGP Pro 4x)	$327
Asus A7M/266 (VIA, Soc-A, U-100)	$370
Asus P4T-E Motherboard (Intel 850 Chipset for P4 Soc-478)	$455
Asus P4T-M (815, U-100, AGP Pro 4x)	$372
Intel BOXD850mv Garibald Board for P4 soc-478 RD ram	$356
Intel D845WN Skt 478, audio 3xSDRAM, 6 x PCI	$317
Intel D850GB P4 Skt 478, RD ram	$317
Gigabyte GA-6VTXE (VIA, S370, AGP 4x, U100)	$158
Gigabyte GA-6VTXD(VIA,Dual S370,AGP 4x,Audio U100)	$280
Gigabyte GA-7ZMMH(266)(SD RAM,VIA,Soc-A ,ATX,Audio)	$205
Gigabyte GA-81DXH (Skt 478,SD RAM, nic, Audio)	$317
Gigabyte 81DML(Skt 478,845 CHIPSDRAM, AUDIO,LAN)	$264
GigabyteGA-7VTXP (Soc A. Athlon XP,)	$224
GigabyteGA-7VTXH (Soc A, Athlon XP, LAN)	$235
MSI 850 Pro (850, SKT-423, U-100, Audio) #6339	$380
MSI 845 Pro (845, SKT-423, SD RAM U-100, Audio)	$337
MSI K7T266 PRO2 (PRO-266, SKT-A, U-100)	$275
MSI K7Master (AMD760SP, SKT-A, Audio, U-100) #6341	$350

MEMORY

128MB PC133 SDRAM 168pin (HY/MT)	$46
256MB PC133 SDRAM 168pin (HY/MT)	$85
512MB PC133 SDRAM 168pin (HY/MT)	$193
64MB PC133 SDRAM 168pin (oem)	$39
128MB PC133 SDRAM 168pin (oem)	$45
256MB PC133 SDRAM 168pin (oem)	$77
512MB PC133 SDRAM 168pin (oem)	$164
128MB SDRAM PC150 168pin (oem)	$124
256MB SDRAM PC150 168pin (oem)	$254
128MB PC133 SDRAM ECC 168pin	$124
256MB PC133 SDRAM ECC 168pin	$220
512MB PC133 SDRAM ECC 168pin	$523
64MB Rambus RDRAM RIMM 800Mhz	$69
128MB Rambus RDRAM RIMM 800Mhz	$138
256MB Rambus RDRAM RIMM 800Mhz	$275
128Mb DDR DIMM PC2100	$72
256Mb DDR DIMM PC2100	$138

HARD DISKS - IDE

20Gb Seagate Barracuda 2M 7200	$192
40Gb 75GXP IBM Deskstar U-100 2M 7200	$292
60Gb 75GXP IBM Deskstar U-100 2M 7200	$361
60Gb Quantum FB AS U-100 2M 7200	$330
80Gb Seagate Barracuda 2M 7200	$434
20Gb WD Caviar/Maxtor U-100 5400	$185
40 Gb WD Caviar U-100 5400	$219
20Gb WD Caviar U-100 7200	$198
40Gb WD Caviar U-100 7200	$260
80Gb WD Caviar U-100 7200	$495

HARD DISKS - NOTEBOOK

12GB Hitachi 9.5mm	$346
10Gb 20GN IBM Travelstar U-66 9.5mm	$245
20Gb 20GN IBM Travelstar U-66 12.5mm	$363
30Gb 30GT IBM Travelstar U-66 12.5mm	$644

HARD DISKS - SCSI

18.4Gb Seagate Barracuda U-160 LVD68	$514
36.4Gb Seagate Barracuda U-160 LVD68	$746
18.4Gb Seagate Cheetah LVD68 10,000rpm	$509
36.7Gb Seagate Cheetah LVD68 10,000rpm	$972
73.4Gb Seagate Cheetah LVD68 10,000rpm	$1,862
18Gb Seagate Cheetah LVD68 15,000rpm	$746
18Gb IBM Ultrastar 36LZX U-160 10k LVD68	$476
36Gb IBM Ultrastar 36LZX U-160 10k LVD68	$1,013

FDD & STORAGE DEVICES

1.44MB, 3.5" Floppy Disk Drive	$27
Iomega 100M Zip Int. IDE (oem)	$103
Iomega 100M Zip Ext. Parallel	$268
Iomega 100M Zip Ext. USB	$232
Iomega 100M ZIP Media	$25
Iomega 250M Zip Int. IDE (oem)	$206
Iomega 250M Zip Ext. Parallel	$367
Iomega 250M Zip Ext. USB	$403
Iomega 250M Zip Ext. USB&PCMCIA	$431
Iomega 250M ZIP Media	$31
ORB 2.2GB Int. IDE Drive (oem)	$370
ORB 2.2GB Int.SCSI Drive (oem)	$395
ORB 2.2GB Ext.SCSI Drive (retail)	$445
ORB 2.2GB Ext. USB Drive (retail)	$515
ORB 2.2GB Disk Media	$74
ORB 5.7GB Int. IDE Drive	$772
ORB 5.7GB Ext. Firewire Drive	$1,024
ORB 5.7GB Disk Media	$156

VIDEO & GAMES CARDS

8M Eagle Trident AGP VGA Card	$52
16M TNT2 Vanta AGP	$72
32M TNT2 Vanta AGP	$84
32M TNT2 M64 PCI (Retail)	$107
64m GeForce II MX400 tv out	$169
Pixelview GeForce 3, 64m DDR TV out	$587
32M Asus V7100 GeForce II MX TV Out	$211
32M Asus V7100 GeForce II MX 2VID	$300
64M Asus V7700 GeForce II Ti Deluxe	$466
ASUS Geforce 3 V8200 DELUXE	$846
32M Radeon DDR AGP LE Version (oem)	$227
32M ATI Rage Fury Pro AGP VIVO (oem)	$204
32M ATI Rage Fury Pro AGP VIVO (Retail)	$227
32M Radeon DDR VE Dual Head (Retail)	$262
64M ATI Rage Fury MAXX AGP	$258
32M ATI All-in-Wonder 128 PCI (Retail)	$453
32M ATI All-in-Wonder 128 Pro AGP (Retail)	$383
32M ATI All-in-Wonder 128 DDR AGP (Retail)	$587
64M ATI Radeon DDR VIVO AGP (Retail)	$487
32M Leadtek Winfast Geforce II MX 200 (oem)	$112
64M Leadtek Winfast GeForce MX-400/TV (retail)	$188
64M Leadtek Winfast GeForce II GTS TV Ultra	$872
64M Leadtek Winfast GeForce III TV DVI (Retail)	$751
32m Leadtek Titanium DDR TV out	$301
64m Leadtek Titanium DDR TV out	$351
32M Millenium G550 Dual Head DDR 360Mhz (oem)	$308
32MB 3D Prophet DDR-DVI (TV+Flat Panel)	$250
32MB 3D Prophet 4000 XT PCI 128bits	$169
32MB 3D Prophet 4000 XT AGP 128bits (OEM)	$124
32MB 3D Prophet 4000 XT AGP 128bits with TV Out	$137
64MB 3D Prophet 4500 AGP with TV Out	$270
32m 3D Prophet II MX AGP	$177
32m 3D Prophet II MX AGP DUAL DISPLAY	$219
64m 3D Prophet II Titanium + TV Out	$349
64m 3D Prophet III Ti200 (TV Out)	$477
64m 3D Prophet III Ti500 (TV Out & DVI Out)	$890
32m 3Dlabs Oxygen VX1 32mb Permedia P4 AGP 4x	$372
32M 3Dlabs Oxygen VX1-1600SW PCI (SGI Flat Panel)	$963
128M 3Dlabs Wildcat II 5110 (Fastest Available)	$5,007

MONITORS

LG 15" 560n	$232
Mitsubishi D/view 1770G 17", .27	$326
Mitsubishi D/view 17NF 17", .25 (Flatron)	$639
Mitsubishi D/view 1995SL 19"	$698
Mitsubishi D/view 19NF 19", .25 (Flatron)	$1,041
Mitsubishi D/view 2107 21", .26 1600x1280	$1,549
Acer 771 17", .27 1280x1024 60Hz	$328
Acer 99si 19", .26 1600x1200 75Hz	$755
Acer 211C 21", .26 1600x1200 75Hz	$1,663
Gateway EV500 15 (1Yr RTB Warranty)	$179
Gateway EV700 17" (1Yr RTB Warranty)	$289
Gateway VX720 17" Diamatron (1Yr RTB Warranty)	$380
Hitachi CM615 17", .24 1280x1024	$357
Hitachi CM621 17" (Flat)	$445
Hitachi CM625 17" (Flat Diamondtron)	$477
Hitachi CM715 19", .22 1600x1200	$602
Hitachi CM721F 19", .20 1600x1200 (Flat)	$746
Hitachi CM828 21", .21 2048 x 1536	$1,595
Hitachi CM823F 21", .21 2048 x 1536	$1,712
LG SW775N Studioworks 17"	$366
LG 795FT Flatron 0.25 17"	$677
LG 995E Studioworks 19"	$746
LG 550M MultiMedia Studioworks 15"	$295
LG 775FT Flatron 0.25 17"	$439
NEC V721 17" Monitor 1280x1024, 0.28	$451
NEC V921 19" Monitor 1600x1200	$715
Sony E220 17", .24-.25 (Flat Trinitron)	$614
Sony G220 17", .24-.25 (Flat Trinitron)	$851
Sony G420 19", .24-.25 (Flat Trinitron)	$1,210
Sony G520 21", .24 (Flat Trinitron)	$2,069
Viewsonic PS775-2E 17", .26 1600x1200	$583
Viewsonic PF775 17", .25 1600x1200 Flat	$652
Viewsonic E70 17", .27 1280x1024	$367
Viewsonic E70-S (flat screen) 17", .27 1280x1024	$470
Viewsonic E790 19", .26 1600x1280	$825
Viewsonic PF790 19", .25 1600x1200	$941
Viewsonic G810-4E 21", .25 1800x1440	$1,511
Viewsonic P815-4 21", .25 1800x1440	$1,805

LCD MONITORS

Acer FP450 14" LCD	$1,010
Acer FP563 15" LCD (Speaker + USB)	$1,565
Acer FP751 17" LCD (Speaker + USB)	$3,098
Acer FP855 18" LCD	$5,564
Hitachi CML152XW 15" TFT Monitor	$960
Hitachi CML170SXW 17" TFT Monitor	$1,602
LG 15" SW570LE LCD Monitor	$1,472
LG 18" W880LC LCD Monitor	$5,482
Mitsubishi TFT 15" DV152 1024x768	$869
Mitsubishi TFT 18" RDT180S 1280x1024	$5,291
Sony 15" SDMM51 TFT Monitor	$1,263
Sony 15" SDMN50 TFT Monitor	$1,848
Sony 18" SDMN80 TFT Monitor	$4,868
Sony 18" SDMN81 TFT Monitor	$3,999

CASINGS

Deluxe Midi Tower ATX 250W	$65
Deluxe Midi Tower ATX 300W (For Pentium 4)	$76
AOpen P4 Full Tower ATX HQ08 300w	$256
AOpen Full Tower ATX HX08 P4	$213
AOpen Midi Tower ATX P3 KF45	$94
AOpen Midi Tower ATX P4 KF45	$107
AOpen Desktop ATX HX95	$126
Macase Midi Tower ATX KA-80 300W	$139
Macase Midi Tower ATX KA-580WP 300W	$142
Macase Desktop ATX (250W)	$127
Macase Full Tower ka-130p4 Champion	$256
Macase KI-P32 4U Rackmount ATX Case 300W	$495
Macase 8-Bay Ext. SCSI -50 CDROM tower	$572
Macase 14-Bay Ext. SCSI -50 CDROM tower	$935

KEYBOARDS

Deluxe 104 - Keyboard PS/2	$15
Acer Accufeel Keyboard PS/2	$23
Logitech Internet Keyboard PS/2 (oem)	$53
Logitech C'less Keyboard + Mouse (oem)	$119
Logitech C'less Freedom Pro (K/b + Mouse)	$239
Logitech C'less Freedom Optical (K/b + Mouse)	$230
Microsoft Internet Keyboard PS/2 (oem)	$49
Microsoft Ergonomic Elite PS/2	$63
Microsoft Natural Keyboard Pro PS/2&USB	$124

MICE

A4+ 400dpi 2-Button Serial	$7
Browser Wheel Mouse PS/2	$15
Dual Scroll wheel mouse PS2	$74
Swann Mini Mouse (Blueberry) USB	$14
Logitech Wheel Mouse PS/2 (oem)	$42
Logitech Wheel Mouse USB (oem)	$42
Logitech Cordless Wheel Mouse PS/2	$120
Logitech Cordless MouseMan Wheel PS/2	$108
Microsoft Trekker Mouse PS/2 (oem)	$17
Microsoft Intellimouse PS/2 (oem)	$44
Microsoft Intellimouse Optical USB&PS/2 (OEM)	$60
Microsoft Intellimouse Explorer USB (oem)	$72

CD ROM

Samsung / LG 52x CD-ROM Drive	$69
50x Asus IDE CD-ROM Drive	$63
40x Plextor SCSI (20MB/s) CD-ROM Drive 50pin HD	$273

DVD ROM

Pioneer 16x DVD 40xR IDE Bare Drive (OEM) (#116)	$143
SONY 16XDVD IDE Bare Drive (oem)	$140
Pioneer 10x DVD 40xR SCSI Bare Drive (Retail)	$335
Panasonic 16X DVD IDE Bare Drive (OEM)	$191

CD REWRITERS

Plextor (16x10x40) IDE + Soft + Media	$676
Plextor (12x10x32) SCSI + Soft + Media	$637
Plextor 12x10x32 SCSI External	$831
HP 9140i (8x4x32) IDE	$242
HP 9710i	$380
HP 9600si (12x8x32) SCSI	$709
HP 8230e (4x4x6) Ext USB	$426
HP 9600se (12x8x32) Ext SCSI	$892
HP DVD WRITER 96198	$1,450
Ricoh MP5120A ATAPI DVD+RW Drive	$1,104
LG 40 X 16 X 10 CDRW IDE OEM (with justlink)	$176
Ricoh 7200A (20x10x40) IDE Kit (with Justlink)	$219
Creative (24x10x40)	$240
Sony CRX161188 (40*16*10) & adaptec CD Creator	$214
Iomega Zip (4x4x6) Ext USB	$466
Yamaha (16x10x24) Ext Firewire + Soft + Media	$772
Adaptec EZCD Creator (OEM)	$62

SOUND CARDS

Eagle 16 bit ESS 1938	$26
Sound Blaster Vibra 128 (oem)	$45
Sound Blaster PCI-128 2-Channel (oem)	$55
Sound Blaster LIVE (oem)	$86
Sound Blaster LIVE DE 5.1	$99
Creative Audigy (retail)	$218
Creative Audigy Platignum	$475
Creative Audigy EAX	$528

SPEAKERS

180W PMPO Stereo Power	$15
PLC WS-80 720w Sub woofer	$39
Altec Lansing ACS22 - 2p	$45
Altec Lansing ACS45.1 Power Cube - 3p	$163
Altec Lansing ATP3 Flatpanel -3p (multi-channel)	$200
Altec Lansing ACS56 Gamers -5p Digital in	$253
Altec Lansing ADA880 Dolby AC3 - 5p	$527
Altec Lansing AVS 300	$82
Creative Speaker Kiosk Stand	$86
Cambridge PCWorks 3-p	$78
Cambridge FPS1000 4-p Surround	$128
Cambridge FPS1600 4-p Surround Digital	$172
Cambridge FPS2000 4-p Surround Digital	$380
Cambridge DTT2200 5-p Speaker Bundle	$317
Cambridge DTT2500D 6-p Desktop Theater	$564
Cambridge DTT3500D 6-p Desktop Theater	$792
Cambridge SW320 3p wood subwoofer	$90

PRINTERS

Brother HL-1250 12ppm 4M Laser	$647
Brother HL-1270N 12ppm 4M Laser	$890
Brother HL-1650 16ppm 8M Laser	$1,116
Brother HL-1660e 16ppm 8M Laser	$1,660
Brother MFC-970MC All-in-One Colour InkJet	$494
Samsung ML-4500 8ppm 600dpi	$438
Samsung ML-5200A 10ppm 1200dpi (+USB)	$552
Samsung ML-6060 12ppm 1200dpi	$789
Samsung ML-7050 17ppm	$1,373
Canon BJC-85 Portable	$369
Canon BJC-1000SP	$109
Canon BJC-2100SP 5ppm	$152
Canon S400SP	$224
Canon S450	$290
Canon S800	$564
Canon BJC-4500 (A3)	$596
Canon BJC-4650 (A3) (opt. Scanner)	$400
Canon BJC-8200	$559
Canon BJC-5500 (A2)	$1,167
Canon LBP1000 Laser	$1,122
Canon LBP1760 17ppm (1200x1200)	$1,595
Canon B-155 Bubble Jet Fax	$400
Canon MPC-75 Multifunction Photo BJ 4 in 1	$524
Canon MPL-60 Multifunction Laser 4 in 1	$1,201
Epson Stylus Color C20UX (USB) (720x720)	$123
Epson Stylus Color C40UX(USB) (1440x720)	$164
Epson Stylus Color C40SX (PRT) (1440x720)	$164
Epson Stylus Color C60U	$265
Epson Stylus Color C70U	$415
Epson Stylus Color C80	$582
Epson Stylus Color 980 (2880x720) (+USB)	$692
Epson Stylus Color 1160 (A3+)	$567
Epson EPL-5700L	$504
Epson EPL-5800	$641
Epson EPL-N1600 16ppm	$1,465
Epson AL-C2000 colour laser	$4,572
Lexmark Z12 Colour (1200x1200) USB	$113
Lexmark Z22 Colour (1200x1200) USB	$124
Lexmark Z32 Colour (1200x1200)	$182
Lexmark Z42 Colour (1200x1200)	$268
Lexmark Z52 Colour (1200x1200)	$323
HP DeskJet 350CBI (Portable)	$556
HP DeskJet 640C	$134
HP DeskJet 930C	$272
HP DeskJet 970Cxi	$548
HP DeskJet 990Cxi	$729
HP OfficeJet T65 4 in 1	$367
HP OfficeJet G85 All in 1	$1,196
HP OfficeJet G95 All in 1	$1,550
HP LaserJet 6L Pro	$815
HP LaserJet 1200 8ppm	$798
HP LaserJet 1220 8ppm (Scanner)	$955
Kyocera FS-1000 PLUS	$655
Xerox DocuPrint P8ex 8ppm	$413
Xerox DocuPrnt M750	$363
Xerox DocuPrint M760	$386
Xerox DocuPrint P1210 12ppm	$703
Xerox WorkCentre 385 4-in-1 Laser	$986
Xerox M750 Docuprint Colour	$364
Xerox M760 Docuprint Colour	$386
OKI OKIPAGE 8IM (Blueberry)	$432

SCANNERS

Acer 620ST SCSI (600x1200) (Trans)	$290
Acer 1240UT (1200x1200) (Trans)	$357
Acer 3300u (600x1200)	$119
Acer 4300u (600x1200)	$163
Acer ScanPremio ST (1200x2400)	$1,336
Acer ScanWit 2720S Film Scanner	$677
Mitsubishi DV650U USB (600X1200)	$112
Mitsubishi DV650UT USB + TPO (600X1200)	$238
Mitsubishi DV1248ST SCSI +TPO (1200X2400)	$978
Canon CanoScan N640P (600x1200)	$145
Canon CanoScan N650U USB (600x1200)	$184
Canon CanoScan N660U USB (600x1200)	$282
Canon CanoScan FB1230U USB (1200x2400)	$399
Canon CanoScan N1240U USB (1200x2400)	$301
Canon CanoScan N2400UF	$800
Epson Perfection1250 USB (600x2400)	$227
Epson Perfection 1250 photo USB (1200x2400)	$461
Epson Perfection 1650	$356
Epson Perfection 1650 Photo	$463
Epson Expression 1680 SCSI & USB (1600x3200)	$2,014
Fujitsu 3091 DC	$1,235
Fujitsu ScanPartner 600C	$2,608
Fujitsu 3093 DG	$7,317
HP Photosmart P110	$562
HP Photosmart P1215	$737
HP Photosmart P1218	$884
HP Scanjet 2200C	$182
HP ScanJet 4400C USB	$272
HP ScanJet 4470C USB	$366
HP ScanJet 5400C USB	$415
HP ScanJet 5470C USB	$557
HP ScanJet 5370C USB	$612
HP Slide Adaptor for 5300	$43
HP ScanJet 7450C USB	$1,486
Microtek Scanmaker 4600 usb	$324
Transparency adapter for 4600	$150
Microtek X12 USL SCSI & USB	$573
Lightlid for X12	$169
Microtek Scanmaker 5700 Firewire & USB	$959
Microtek ScanMaker 8700 (1200x2400) USB&FW	$2,309
Microtek Artix 4000 35mm only	$2,176
Microtek Artix 4000tf 4000 dpi fw slide scanner	$2,395
Microtek 9600 XL A3+	$2,865
Microtek Artix 2500 TF film & flatbed	$10,316
Transparency Adaptor for 9600XL Scanner	$702

MODEMS

56K V90 Fax Modem Internal (oem)	$39
56K V90 Fax Modem Internal Web Excel	$45
Netcomm InModem 56K V90 Int. PCI (Retail)	$60
Dynalink56k Ext, Answer Machine/Fax/Data	$87
Netcomm Smart I-Share 56 #SM4200	$468
Netcomm SmartModem 56 V90 Ext.	$483
3Com USR FaxModem 56K Ext.	$230
3Com USR Voice Message Modem 56K Ext.	$234
3Com USR Professional Message 56K Ext.	$317
Swann Turbo 56K External Modem	$150
Dynalink ALE070 USB ADSL Modem	$389

PCMCIA (modem)

Lightspeed 56K Rockwell PCMCIA Modem	$121
Netcomm Card Modem 56K Global CM5600	$297

forté

SUPER SPECIAL 15"MONITOR ONLY $179.00

SUPER SPECIAL 17"MONITOR ONLY $289.00

forté COMPUTERS

Best prices Guaranteed

We give you FLEXIBILITY

FEBRUARY DEALS

DVD SYSTEM
P4 Special

Intel P4 1.7G
Gigabyte 81DML Motherboard
256m SD PC 133 RAM
20g Ultra eide 7200 Hard Drive
1.44 Floppy Drive
64m GeForce 11 Mx400 tv out
17"EV700 Monitor
Deluxe Midi Tower ATX 300w Case
Deluxe 104 Keyboard
Browser Wheel Mouse
Sony 16 x DVD Player
Sound Blaster Live Sound Card
Altec Lansing AVS 300 3 piece Speakers
56k Internal V90 Modem
MS WINDOWS XP Home (OEM)

$2100

THIS MONTH'S SPECIALS

HOME NETWORK KIT
All you need for a 2 station Home network
Fits any computer with spare PCI slot

you get:
2 x 10/100 Network cards
1 x 5mtr Xover network cable

all for $70.00
Post Free anywhere in Australia

MODEM
56k Internal PCI modem for $36.00
Post Free anywhere in Australia
(Needs Pentium MMX CPU and spare PCI slot)

1 Gig POWER
Celeron/P111 System
WITH MONITOR & CD BURNER

Intel 1Ghz CPU
ASUS CUSI-M Motherboard
128m SD PC 133 RAM
20g Ultra EIDE 7200 Hard Disk
1.44 Floppy Disk Drive
15" Ev500 Monitor
Deluxe Midi Tower Case
Browser Wheel Mouse & Mat
LG 40x16x10 CDRW drive
180w PMPO Speakers
56k Internal V90 Modem
MS WINDOWS XP Home (OEM)

With 1Gig Celeron $1260
With 1Gig Pentium 111 $1580

Stylus Colour C20UX
$124.00

HITACHI 17" TFT CML 1702
$1500

HITACHI 15" TFT CML 153
$960

SAVE A BUNDLE ON MONITORS

15" EV500 for only $179
17" EV700 for only $298
VX720 DIAMATRON 17" $380
Limited Stock

Stylus Colour C40UX
$166.00

Terms & Conditions All prices include 10% GST and are subject to our full terms and conditions of sale, a copy of which is available upon request or on our website. Prices are valid until 21st February 2002 or are sold out, and are subject to change without notice. Check our website for updated prices. **Ordering and Payment.** Ordering can be done by telephone, fax, e-mail or buy direct from our secure website. We accept Cash, Direct Deposit or Bank Cheque. Credit Card, cheques and EFTPOS transactions may attract a surcharge. Cheques and Direct Deposits need 3 days for clearance. **(National Australia Bank, Strathfield, NSW, BSB 082 451 Account No 633 065 162) Delivery** Under 3kg Australiawide $13.20, Sydney Metro up to 20Kg $22 Other areas or interstate please call for charges. Warranty & Return. Forte Systems carry 2 years RTB warranty. Third party devices carry manufacturers warranty. It is the customers obligation to ensure that the correct goods are ordered. Please obtain an RA number before returning goods. Returned goods must be unopened and well packaged for return within 7 days of receipt, and accompanied by a copy of the invoice. Refunds will be given less a 20% restocking fee if not faulty. Delivery fee and insurance costs are to be borne by the customer. Pictures in this ad are for illustration purposes only. Trademarks & logos are the property of the respective owners. Errors & omissions excepted

ORDERLINE 1300 368 922

Tel: (02) 9715 2911 **Fax:** (02) 9715 1067 **Service:** (02) 9715 2064 **Order Tracking** (02) 9744 6177

WEB SITE www.fortecomputers.com.au or www.forte.net.au **EMAIL** sales@fortecomputers.com.au

ADDRESS 101-105 Parramatta Rd, Concord, NSW 2137 Trading Hours Mon to Friday 9am-6pm, Sat 9am-2pm

BRANCH SHOP R6, 320 Pitt St, Sydney, NSW 2000. Tel: (02) 9267 9494 Fax: (02) 9267 9495 HOURS Mon-Fri 9am-5:20pm, Sat 9am-12:30pm

What do you know ?

Get Certified

MCSE • MCP • MCDBA • MCSA • A+ • N+ • CIW • CCNA • CNE • CNA • MOUS • i.Net+

We know what it means to be certified, and we prove it in the way we develop our training content. All of our self paced courses for certification are developed and presented by certified experts, which means you get access to proven intellectual capacity, real-world insight, and comprehensive knowledge of the very best and most respected experts in the industry.

"I Proved it."

"I am just writing to express my gratitude to LearnKey. I have resigned from my old job as I have secured a position paying over $80 000 p.a. almost double what I have been getting. I owe it all to the amazing training from Learnkey !"

Craig,
21 October 2001

For Computer Users and IT Professionals
Learnkey - Learn From the Experts™

Get Certified with LearnKey training
Call our certification experts to see what is best for you and to receive an info package including **a free demo CD-Rom**.

C D - R O M • V I D E O • I N T R A N E T

LearnKey™

Microsoft • CompTIA • Novell • Cisco • Lotus • Adobe • Linux • Corel • Macromedia

1800 22 99 33 • www.inlearning.com.au

AUSTRALIA COMPUTER ONLINE

COMPUTER ONLINE

tel: (02) 9747 0001; 9744 6667 fax: (02) 9747 8878 e-mail: pc@computeronline.com.au

Address www.computeronline.com.au Go! Links »

Please check our Web Site for additional products, online ordering and updated prices. Prices include GST and are subject to change without prior notice

Computer Parts and Accessories

CPU's

intel

Celeron 900	$141
Celeron 950	$170
Celeron 1000	$179
Celeron 1100	$221
Celeron 1200	$260
P4 - 1.5GHz S478	$389
P4 - 1.6GHz S478	$435
P4 - 1.7GHz S478	$485
P4 - 1.8GHz S478	$552

AMD

Athlon 1.1G & fan	$227
Athlon 1.2G & fan	$238
Athlon 1.3G & fan	$257
Athlon XP 1600	$310
Athlon XP 1700	$370
Athlon XP 1800	$505
Duron 900 & fan	$150
Duron 1000 & fan	$180
Duron 1100 & fan	$210

Hard disks

Notebook 10GB	$218
Maxtor 20GB	$170
Maxtor 40GB	$200
7200 RPM	
WD 300BB 30GB	$220
WD 400BB 40GB	$240
WD 600BB 60GB	$340

Seagate

Barracuda III 20GB	$190
Barracuda III 40GB	$245

IBM

Deskstar 20GB	$213
Deskstar 40GB	$276
Deskstar 60GB	$382
Quantum 20GB	$190
Quantum 30GB	$224
Quantum 40GB	$240

Motherboards

Pentium III / Celeron

ASUS CUSL2	$260
ASUS CUSL2-C	$230
ASUS CUSI-M	$165

GIGABYTE

GA-6VTXE	$151
GA-6OXET	$235
GA-6OX	$190
MSI-6368	$143
Aopen AX34	$188

PROTAC

M758lmr/ M754lmr	$160

Pentium 4

Gigabyte 8TX-C	$310
Asus P4T-F	$359
Asus P4B	$360

AMD Athlon / Duron

Gigabyte 71XE4	$150
Gigabyte 7ZMMH	$190
Gigabyte 7ZXE	$180
Gigabyte 7VTXP	$230
ASUS A7VL-VM	$170
ASUS A7V- E	$199
ASUS A7V133-C	$235
ASUS A7V266-E	$335
ASUS A7M266	$360
ASUS A7A266	$310
ABIT KT7A	$236
ABIT KT7A Raid	$279
ABIT KG7 Light	$300
ABIT KG7	$320
ABIT KG7 Raid	$360
MSI K7T 6330	$202
MSI K7T266 Pro	$275
MSI K7T266 Pro-RU	$344
PROTAC M810	$170
Shuttle Ak31	$230
Elitegroup K7S5A	$170

Video cards

4M 3D PCI / AGP	$45
8M SIS AGP or PCI	$55
16Mb SIS AGP	$60
16Mb TNT2 / 32Mb TNT2 AGP	$65 / $77
32Mb TNT2 PCI	$97
32Mb TNT2 with TV out AGP / PCI	$100 / $150
32Mb TNT2 AGP with TV out &Video in	$150
64Mb GeForce 2 MX	$120
Matrox G550 32Mb Dual head AGP	$308

ASUS

V7100 GeForce II MX400 64Mb TV out	$220
V7700 Titanium 64Mb Deluxe, DDR	$470
GeForce 3 64Mb Ti 200	$649
GeForce 3 64Mb Ti 500	$957
Hercules 3D Prophet II MX400 32Mb	$210
Hercules 3D Prophet 4000 XT 32Mb	$123
Hercules 3D Prophet 4500 64Mb TV out	$319
Hercules 3D Prophet III Ti200 64Mb TV	$480
Hercules 3D Prophet III Ti500 64Mb TV	$860
Leadtek GeForce 2 GTS 64M	$200
3D Power GeForce 3 Ti 200 oem	$470
Eagle GeForce II MX AGP 32Mb TV-out	$130
Eagle GeForce II MX G400 64Mb TV-out	$153
Pixelview GeForce II MX400 AGP 32Mb	$130

CD Rewriters

Diamond DD1610A 32x16x10 IDE Kit	$200
LG GCE - 8160B 32x16x10 IDE Kit	$188
Panasonic 7586 32x8x4 IDE Kit	$189
Acer 1610A 32x16x10 IDE Kit	$188
Acer 2010A 40x20x10 IDE Kit	$228
Sony CRX175E 40x24x10 IDE oem	$240
Sony CRX1611 32x16x10 IDE oem	$214
Sony CRX160S 32x12x8 SCSI oem	$290
Ricoh MP7200A 40x20x10 IDE Kit	$222
Ricoh MP9120A 32x12x10 DVD Kit	$360
Ricoh MP9200A 40x20x10 DVD 12x Kit	$460
Mitsubishi Diamond external 32x4x4 USB	$330
Iomega CDRW6400 40x16x10 kit	$199
ASUS 2410S 40x24x10 kit	$290
Liteon 24x10x40 kit	$250

Printers

EPSON

Stylus C20UX	$113
Stylus C40UX / 40SX	$164
Stylus C60	$250
Stylus C70	$405
Photo 810	$345
Photo 895	$670
Photo 1290 (A3)	$909

Canon

BJC1000SP	$105
BJC 2100SP	$140
S-400	$214
S-800	$550
Laser LBP810 (8ppm)	$475

hp

HP 640C	$135
HP 845C	$189
HP 930C	$255
LaserJet 1200	$765
Panasonic KX6100	$305
Samsung ML-4500	$392

Scanners

Acer 3300U	$119
Canon N340P	$110
Canon N640P	$130
Canon N670U	$170
Canon N676U	$200
Canon N1240U	$275
Canon D660U	$255
HP 2200C	$174
HP 4400C	$250
Mitsubishi DV648U	$100
Epson Perfection 1250	$227
Epson Perfection 1650	$356
Epson 1650 photo	$440

Add on cards

Promise U100	$90
PCI SCSI II card	$44
USB PCI card	$35

Sound Cards

ISA / PCI Sound	$25

Sound Blaster

PCI -128 oem	$41
Live oem	$89
Live DE 5.1	$100
Live Audigy DE	$199
Live Platinum 5.1	$361

Memory

128Mb SDRAM	$45
256Mb SDRAM	$75
DDR 256M	$150

Networking

NIC 10/100Mb	$22
8 Port Hub 10Mb	$64
4 Port Hub 100Mb	$78
4 Port switch 10/100	$90
8 Port Hub 100M	$109
8 Port switch 10/100	$120
USB Hub 4 port	$50

CD & DVD Rom

52x CDROM	$65
DVD 16x **Sony/Sams**	$130
DVD16x **Pioneer/LG**	$130
DVD 16x **Panasonic**	$160
DVD 16x **Diamond**	$145

Removable Storage

100Mb USB Zip	$179
100Mb Internal Zip	$110
250Mb USB Zip	$360
250Mb Internal Zip	$185

Cases

ATX Midi case	$55
ATX Full tower case	$110
ATX **Aopen** KF45	$70
ATX **Aopen** HX45	$100
ATX **Aopen** HQ 08	$185
ATX **Macase** K580	$140
ATX **Macase** K80	$138

Computer System Warrenty is 1 year parts 2 years labour Return to Base

Pentium 4 Series

- **P4** Mainboard
- 256M SDRAM PC133
- 20GB 7200rpm HDD
- Panasonic Floppy
- 32M GeForce II MX
- PCI 3D Sound card
- 16x DVD Rom
- 17" Acer / LG Monitor
- Subwoofer Speakers
- Midi Deluxe ATX case
- Microsoft Internet Keyboard
- Microsoft Intellimouse & Pad

P4 1.5Gb	$1750
P4 1.6Gb	$1790
P4 1.7Gb	$1860
P4 1.8Gb	$2000

AMD Astra Pro

- **ASUS** Motherboard
- 128M SDRAM PC133
- 20GB 7200rpm HDD
- Panasonic Floppy
- 32M GeForce II MX
- S/B 128 Sound card
- 50x CD Rom
- 17" Acer / LG Monitor
- 480 Watt Speakers
- Aopen KF45 ATX case
- Acer Win98 Keyboard
- Microsoft Intellimouse & Pad

Duron 900	$1345
Athlon 1.2G	$1435
Athlon 1.3G	$1455
AthlonXP1800	$1700

Value Series

- Pentium III Motherboard
- 128M SDRAM PC133
- 20GB HDD UDMA 100
- Panasonic Floppy
- 8M Video card built-in
- PCI 3D Sound card built-in
- 56K Modem V90
- 50x CD Rom
- 15" SVGA Monitor
- 120 Watt Speakers
- Midi Deluxe ATX case
- Win98 Keyboard
- A4 Mouse & Pad

Celeron 900	$950
Celeron 1000	$980
Pentium III 866	$1130
Pentium III 1G	$1170

Blank CDs

CD 74min	$0.6
Ricoh/Kodak/Misumi	$1.5
Verbatim/Kodak 80m	$1.5
Rewritable CD	$3.0

Cameras

Logitech clicksmart	$180
Creative Web cam	$87
Vcam Digital	$90
ViewExcel	$80

We accept cash, cheque or direct deposit and for in shop purchases Eftpos and Visa cards. All orders are despatched after clearence Prices are exclusive of delivery and Insurance.

MS Software

Windows ME / 98	$210
Windows XP Home Ed	$217
Windows XP Professional	$335
Windows 2000 oem-Full	$330
Office XP Small Business	$380
Office 2000 / XP & Pro-Full version oem	$500

Monitors

15" **Samtron** 55E	$240
15" **LG / Packard Bell**	$240
15" **Mitsubishi / Acer** 54E	$250
17" **Olympic / Packard Bell**	$330
17" **Acer** V77I C	$340
17" **Mitsubishi** 1770g	$340
17" **LG** 775N	$340
17" **Samsung** 75E	$340
17" **Hitachi** CM615ET	$357
17" **Diamond** 17NF	$580
17" **Sony** CPDE230	$599
19" **Sony** CPDG420	$1230
19" **Mitsubishi** 1995SL	$600

Modems

56K Int	$39
Netcomm 56K Int	$55
56K Ext or USB	$90
Netcomm Simplicity com	$99
Netcomm Rave USB	$130
Netcomm Roadster	$180
Dynalink Ext	$90
PCMCIA 56K	$130

Speakers

120W SPKs / 480W	$10/$30
400W SPKs with Sub-Woofer	$40
Creative PC Works S/Woofer	$78
Creative FPS1500 4 Spks	$168
Creative FPS1000 4 Spks	$125
Altec Lansing ACS22 /300	$40/$80

Mice

A4-Tech PS/2 or serial	$7
A4-Tech PS/2 wheel	$15
A4-Tech 4D wheel	$30
A4-Tech wireless PS/2	$30

Logitech

PS/2	$15
Wheel PS/2 or USB	$30
Optical PS/2 or USB	$45
Optical cordless PS/2 / USB	$139

Microsoft

IntelliMouse PS/2	$30
Wheel mouse Optical oem	$55
IntelliEye Explorer oem	$75
SAMSUNG Cyber Optical	$45

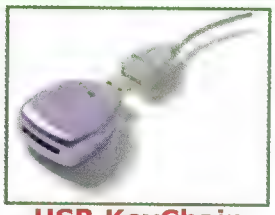
Keyboards

Win98 AT or PS/2	$15
Acer AT or PS/2	$20
Multimedia AT or PS/2	$25
Logitech Internet	$45
Logitech Cordless Freedom	$129
Logitech Cordless Optical	$200
Microsoft Internet	$40
Microsoft Internet Pro	$75
Microsoft Natural Elite	$50
Microsoft Natural Pro	$100
Honeywell Multimedia	$50
Wireless & mouse pointer	$80
LG wireless K/B with mouse	$100

Business hour: *9:00am-6:00pm Mon-Sat* **Bank Detail:** *Australia Computer Online Pty. Ltd. Westpac BSB:032 062 Acc. No:159 750*

Start | Australia Computer Online **42 Claremont Road, Burwood Heights, NSW 2136** | Internet | Jan 2001

Largest Range of Digital Camera Card Readers



USB KeyChain Style

Smallest USB card readers available, models for SmartMedia, CompactFlash, MMC & Sony MemoryStick

USB & FireWire Desktop Style

Stylish USB desktop card readers from Datafab, models for SmartMedia, CompactFlash, MMC & Sony MemoryStick

USB Multi-Format Readers

Read all formats with the Addonics' DigiDrive, USB interfaced and powered, not much larger than a single slot reader

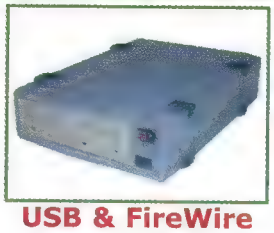
USB Mobile Storage

Read your memory cards without a PC! Includes an internal hard disk, doubles as an external drive, 3, 10 & 20Gb sizes available

USB & FireWire Mobile Storage

Minds@Work MindStor, with USB & FireWire interfaces make this personal card reader and drive product a must have

Largest Range of Personal Computer Storage Products



USB & FireWire Burners

Internal, external, FireWire, USB, SCSI, from 8 to 40x - we have a very large range of burners to choose from

CDRW/DVD MultiFunction

Don't settle for just a burner, when you can have a DVD drive as well. The combo drive is available in USB or FireWire interfaces

FireWire External Drives

From our website, choose from "build-your-own" or we can build it - or choose from a name brand, we make storage easy

USB & FireWire Storage

The Datafab cases are our most popular drive enclosures for standard 3.5" HDD, choose from USB, FireWire or both in one!

SCSI RAID Systems

Protect your data and increase performance with one of our RAID systems we have storage systems up to 2 Terrabytes

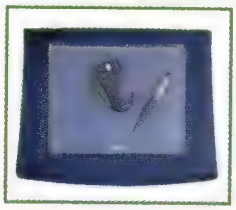
The Most Popular Graphics Tablets from Wacom

graphire2

New Model!!

Graphire2 - the "Magic" Pen & Tablet Set - *Shape your Creativity with Wacom Graphire2*

The most popular Wacom digitiser of all time, affordable - less than $200, easy plug and play USB connection (Mac & PC), pressure sensitive and batteryless pen for drawing, painting, or anything! Great new colours

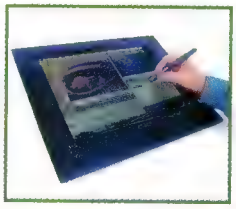


intuos2

New Model!!

Intuos2 - Intelligent Graphics Tablet System - *a design tool for professional graphic designers*

Intuos2, the leading drawing tablet system, an extraordinary level of sensitivity that has won the praises of creative people all over the world. An incredible 1024 levels of Pen Pressure Sensitivity!! Different sizes and colours available



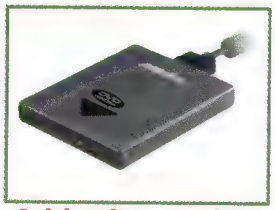
Cintiq

New Model!!

Cintiq - Drawing the Future - *Intuitive, natural interaction with your computer*

Swift, dynamic and user friendly - it's uses are unlimited, ranging from filling in business documents directly by hand & performing operations more quickly and accurately than with a mouse, t free hand drawing it's your digital sketch pad

Portable and Mobile Solutions for NoteBook PC Users

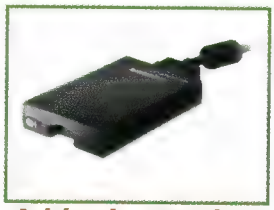


Addonics Pocket DVD Player

Upgrade your notebook for DVD movies, easy connection via PC Card, USB or FireWire - can be used on desktop PC's as well

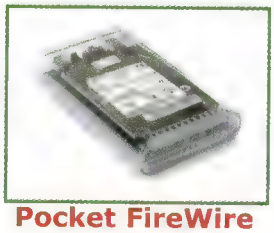
Addonics Pocket CDRW

Extremely small and light, the Addonics Pocket CDRW is ideal for the notebook user - available with a choice of interfaces



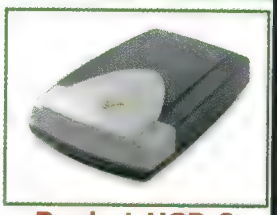
Addonics Pocket ExDrive

Share data between your desktop and notebook with the ExDrive, comes with disk mirroring software for easy upgrades



Pocket FireWire Disk Drives

Pocket-sized and super sexy, our transparent FireWire drive enclosures use the latest technology for extreme performance



Pocket USB & FireWire Drives

Pocket drive enclosures with USB or FireWire interfaces - hot swap and plug and play storage for your notebook or desktop

BITS.
Computer Graphics

Secure Shopping at www.bits.com.au
eMail sales@bits.com.au

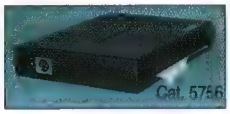
L5, 111-117 Devonshire Street, Surry Hills NSW 2010, Phone 02-9310 3199, Facsimile 02-9310 4199

Put your Palm to work!

Microgram now has the "on-the-road' solutions you have been waiting for.

Cat 18101-2 Universal Adapter for Palm. Add a barcode reader and standard keyboard to your Palm Vx and at the same time convert it to a universal remote control **$279**

Cat 18102-2 PS/2 Keyboard adaptor and emergency charger for your Palm OS PDA **$289**



Cat 5756-2 Pocket Portable Printer for your PDA via IR. Quality A6 printing with No Wires **$499**

Satellite/Cable TV to every room

Watch TV in the garage!! (if you want to). This innovative solution will take your Cable, TV, Satellite or Audio to any room in the house **WITHOUT WIRES**. Even keep an eye (and ear) on baby using a camcorder.

Cat 11808-2 **$299**

Video Conversion...Convert the lot!!!

Cat 3393-2 USB Video frame capture **$199**

Cat 3431-2 Cleans up Jittery signals when recording. **$135**

Cat 3434-2 Converts your PAL video to VGA. Lets you watch video/TV on a high-resolution monitor. **$354**

Cat 3435-2 NTSC, PAL, SECAM to PAL or NTSC multi-system conversion. **$389**

Cat 3436-2 NTSC, PAL, SECAM & VGA to PAL NTSC & VGA. (ALL system conversion). **$554**

Cat 3437-2 VGA to Video.

Computer to Big Screen TV. **$354**

Cat 3438-2 Auto A/V switcher. Uses your existing remote control. **$154**

Long Range CCD Scanner

The Taiwanese are really trying to avoid paying laser engine royalties to US companies! Our new long range CCD scanner is excellent and leads the field with 300 scans per second and a reading distance up to 280mm (depending on barcode). The optical system utilizes 2 x 3000 pixel CCD sensors to provide laser like performance. **Cat 8919-2** **$399**

THIS MONTH'S FEATURE PRODUCT

Thin Client...what's that?

Thin client terminals are the future, offering low maintenance/installation cost and drastically enhanced reliability (install & forget). Contact us to discuss the benefits of installing our quality Termtek terminals either to replace ageing terminals or perhaps upgrading to one of our Windows models that offer thin client benefits within a familiar working environment.

Cat 1232-2 **$1399**

Computer Watch Dogs

If your application program locks up, these cards will turn off the power to the computer after a selectable period. This is done by writing to the card base address to reset the internal counter. Utility software is included for DOS, Windows 3.1/95/NT, OS/2 and UNIX.

Cat 17050-2 (ISA) W/dog II **$399**
Cat 17076-2 (PCI) W/dog II **$649**
Cat 17044-2 (ISA) W/dog I **$165**
Cat 17070-2 (PCI) W/dog I **$332**

"You need what?"

Omni-directional Laser Scanner

An affordable, vertically mounted, omni-directional laser scanner ideally suited to supermarket checkouts and the like. Performance is higher than the "Name Brands" with a 24 scan line pattern (competitors' products is 20) and 2,400 scans/sec (competitors': 2000 scans/sec). Depth of field is 300mm. Available in serial or AT Keyboard wedge.

Cat 8573-2 **$1729**

POS Bundle

GST can be a headache but not with our POS Hardware Bundle! Our Point of Sale bundle includes a Citizen parallel printer (as required by MYOB Retail Manager), a cash drawer and our very popular CCD bar code scanner.

Cat 8903-2 POS Bundle **$1049**

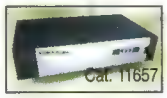
KVM Switches

Got More Than one Computer? Control them with one keyboard/monitor/mouse. Save space and big dollars in both redundant hardware cost, and power wasted unnecessarily.

Cat 11654-2 Manages 2 computers ideal for small office/home **$199**

Cat 11655-2 Manages 4 computers **$399**

Cat 11656-2 Manages 8 computers **$949**



Cat 11657-2 Manages 16 computers **$1299**

Cat 11658-2 USB KVM switch - 2 computers - needs only USB and a VGA cable **$219**

Cat 11659-2 USB KVM switch - 4 comps **$449**

At last Multiple Serial Ports from USB!

Cat 2851-2 USB to 4 serial (RS232) ports **$499**

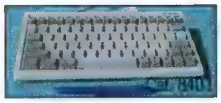
Cat 2852-2 USB to 2 serial (RS232) ports **$169**

Cat 2853-2 USB to single RS 422/485 **$269**

Cat 2854-2 USB to 2 x RS422/485 with opto-isolation **$549**

Cat 2828-2 This single USB to Serial converter allows a serial device, such as a modem to be connected via the computer USB port. The serial connection is DB9 Male. **$79**

More Space for your Desktop



A fully featured compact keyboard with a really nice "feel". The perfect classroom keyboard or where desk space is restricted. **Cat 8403-2** **$81.00**

A full size keyboard with a really solid "feel" incorporating the latest smart card security technology. Easily control access to your computer/network. You can even edit your phone SIM card.

Cat 8860-2 **$199**

USB Hard Drive Case

This external case will support standard 2.5 inch IDE hard drives and connects to a USB port. A carry case is included. It requires Win98, ME or Win 2000.

Cat 6653-2 **$139**

Australia wide express courier $15 (3kg max)

MicroGram Computers • www.mgram.com.au

Dealer Enquiries Welcome!

Vamtest Pty Ltd trading as **MicroGram Computers** ABN 60 003 062 100, Unit 1, 14 Bon Mace Close, Berkeley Vale NSW 2261

Phone: (02) 4389 8444 **FreeFax: 1 800 625 777** **sales@mgram.com.au** **info@mgram.com.au**

All prices subject to change without notice. Pictures are illustrative only.

SHOREAD/MGRM0202

Order Online: **CORPSOFT .COM.AU**

Phone us: 02 9725 3700 Fax us: 02 9604 1983

HARDWARE

HARDWARE SPECIALS

Intel Easy PC Internet Camera
$55

Hewlett Packard
Deskjet 930c Inkjet Printer
$269

Epson
PhotoStyler 1290 Inkjet Printer
$995

KEYBOARDS/MICE

Microsoft Office Keyboard
$98

Logitech Cordless Keyboard & Optical Mouse
$199.50

Microsoft Intellimouse Explorer
$60

SPECIAL DEALS

MS Office XP

Standard Upg	$495
Professional Upg	$675
Developers Upg	$1066
Special Ed Upg	$815
Std N/Install	$949
Pro N/Install	$1059

Filemaker Pro 5.5

New Install	$440
Upgrade	$269

Filemaker Developer 5.5

New Install	$850

Filemaker Server 5.5

New Install	$1910
Upgrade	$965

Filemaker Pro 5.5 Unlimited

New Install	$1910
Upgrade	$980

Corel Products

Corel **Word Perfect Family Pack 3**

Includes: • Wordperfect V9 and Quattro Pro
• McAfee VirusScan to protect your system
• CYBERsitter filters the Internet for your kids
• Interactive world atlas

$280

CorelDraw Version 10

New Install	$985
Upgrade	$585

CorelDraw Version 8

New Install	$400

CORPORATE SOFTWARE
AUSTRALIA PTY LIMITED

Unit 1, 28 Victoria St, Smithfield NSW 2164
PO Box 6168, Wetherill Park NSW 2164

Order Online: **CORPSOFT .COM.AU**

Phone us: 02 9725 3700 Fax us: 02 9604 1983

SOFTWARE

NORTON

NORTON
AntiVirus 2001
Single User **$55**
Five Users **$220**

NORTON
SystemWorks Pro 2002
New Install **$159**
Upgrade **$129**

NORTON
CleanSweep 2000
New Install **$29**

NORTON
AntiVirus 2002
New Install **$84**
5-User **$255**

BUSINESS SOLUTIONS

MYOB
Accounting Software
Accounting V11 **$330**
Accounting Plus V11 (Inc. Payroll) **$460**

AutoCAD LT 2002
RRP ~~$1895~~
Our Special Price **$1550***
*After $50 Cashback – Everybody qualifies

GRAPHICS

Paintshop Pro V7
Inc. 10th Anniversary Bonus Pack
New Install **$208**

ULEAD
PhotoImpact V7
New Install **$232**
Upgrade **$159**

NEW YEAR SPECIALS

Goldmine V5 *SAVE 70%*
New Install **$149**
(Full version, not Goldmine Express)

ROXIO
Easy CD Creator Platinum
Version 5 **$125**

ADOBE
Acrobat V5
New Install **$535**
Upgrade **$280**

MICROSOFT
Publisher 2000
New Install **$179**

MICROSOFT
Encarta Ref Library 2002
CD or DVD **$59***
*After $100 Cashback – Everybody qualifies

Flight Simulator 2002 Pro
New Install **$115**

CLEARANCE

MS Office 2000
Standard Upgrade **$499**
Professional Upg **$725**
Premium Upg **$825**
Standard N/Install **$659***
Professional N/I **$885***
Premium N/Install **$985***
** Upgrade bundled with competitive product*

PLEASE NOTE: • Delivery: Post $11.50 or Courier $15.90 • We accept Bankcard Mastercard and VISA, but not AMEX or Diners. COD welcome • Phone, Fax and Mail Orders Welcomed • Goods ordered in error incur a 15% restocking fee • We Accept authorised returns for Credit within 10 days if goods are unopened and in saleable condition • Moneyback Offers (if any) are the responsibility of the manufacturer • E.& O.E • All Prices are Subject to Change Without Notice • Images shown are for illustration purposes only • Artwork prepared Dec 20 – prices advertised are GST inclusive. 02/02

We GUARANTEE to beat any genuine competitor's price!!!

Phone (02) 9725 3700 • Fax (02) 9604 1983

NEW TOLL FREE ORDER LINE: 1300 138 333

100% AUSTRALIAN OWNED
Over 14 years in operation

GIGABYTE TECHNOLOG

P4 Titan Series Motherboard

Supports Intel® Pentium®4 Processor

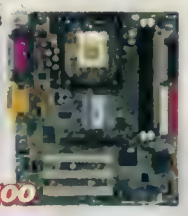
Socket 478 DDR

P4 333 FSB DDR333+

400MHz FSB DDR

GA-8IRM Intel® 845 AGPset

Socket 478 for Intel® Micro FC-PGA2 Pentium® 4 processor
400 MHz FSB
2 x 184-pin DDR socket Supports up to 2GB in DDR200/DDR266 memory
Supports AGP Pro, 3 pci slots and 4 USB ports
Supports UDMA ATA 100/66 IDE
AC97 audio on-board
Supports WOL. WOR and USB wake up
ACPI & STR (Suspend-To-RAM)
Supports EasyTune III and @BIOOS
Multi-FSB, multiplier settings Multi-CPU voltage, SDRAM voltage settings

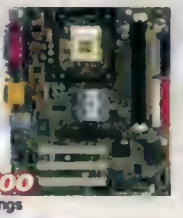


ATA100

400MHz FSB DDR

GA-8IRML Intel® 845 AGPset

Socket 478 for Intel® Micro FC-PGA2 Pentium® 4 processor
400 MHz FSB
2 DDR DIMMs support up to 2GB of PC1600/PC2100 DDR memory
Provides AGP 4X slots and 4 USB ports
Supports UDMA ATA 100/66 IDE device
AC97 audio
Intel® PRO/100 VE Network Connection
Supports ACPI and STR (Suspend-To-RAM)
Supports WOL and USB wakeup
H/W monitoring and PC99 connectors
Supports EasyTune III and @BIOOS
Multi-FSB, multiplier settings
Multi-CPU voltage, SDRAM voltage settings



ATA100

400MHz FSB DDR

GA-8IRX Intel® 845 AGPset

Socket 478 for Intel® Micro FC-PGA2 Pentium® 4 processor
400 MHz FSB
3xDDR DIMMs support up to 2GB of PC1600/PC2100 DDR memor
Provides CNR / AGP 4X slots and 4 USB ports
Supports up to 4 UDMA ATA 100/66 IDE device
Creative CT5880 H/W audio supports 5.1-channel S/PIDIF
Supports DualBIOS™ and Multi-Language BIOS
Supports Gigabyte Q-Flash and Face Wizard utility
Multi-FSB, Multiplier, DDR frequency / voltage setting from BIOS
Supports WOL, Modem Ring On and USB wakeup

ATA100

HTTP://WWW.GIGABYTE.COM.TW

LifeView®

Multimedia Today and Tomorrow

FlyJacket i3800

Features

Plug & Play: After the installation of a driver and a utility, the FlyJacket becomes a Plug & Play device for iPAQ. The PocketPC will auto-detect the connection of the FlyJacket to the iPAQ .

VGA Output: By connecting the VGA output to a Projector or a VGA monitor via an extended 15-pin VGA cable, the user will achieve a larger display when using the iPAQ for presentation purposes.The VGA output supports 640*480, 800*600, 1024*768 .

Video Input: Various video sources including VCRs, VCD / DVD players, and DSCs may be used as a video input source for the FlyJacket. It supports full motion (frame rate up to 30fps) video previewing, (S-Video and Composite) on an iPAQ.

Video Output: The FlyJacket converts and outputs iPAQ screen to either a Composite video signal or a S-Video signal .FlyJacket features a best demonstration kit for sales presentation , e.g. insurance, real estate, car, etc.

Still Capture The FlyJacket performs single frame capturing of images from either an attached camera or video input. The image size captured is up to 720*480 .

Built-in CF Slot, Remote Control / Pointer, Self-sufficient Power

Specification

Weight 159.4g Internal Battery 1400mAh, 3.6V Dimensions 12.8cm (W) x 8.6cm (H) x 1.7cm(D)

Display Resolutions VGA 640*480 / 64k colors
SVGA 800*600 / 64k colors
XVGA 1024*768 / 256 colors

Video In / Out AV cable (Composite video)
S cable (S-Video)
NTSC / PAL auto scan

HTTP://WWW.LIFEVIEW.COM.TW

Official Authorised Distributor

rectron

Authorized Importer & Distributor :

Rectron Electronics Pty Ltd Australia
795 Springvale Rd, Mulgrave, VIC 3170.
Tel : 61-3-95616166 Fax : 61-3-95618722

WAS $1679

SAVE $1000

Now only

$679 inc. GST

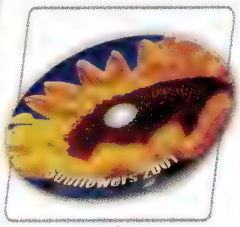
Hurry! For a limited time. While stocks last.

PRINT YOUR OWN PROFESSIONAL CDs IN FULL COLOUR!

CD Printer 2000

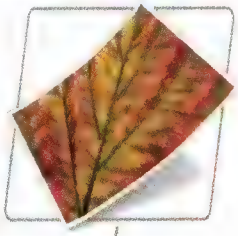
Amazing Features!

- Prints on CD, paper and transparencies!
- 720 dpi print resolution
- Uses standard EPSON™ ink cartridge
- COREL 4™ print set-up software supplied
- Prints up to 4 CD-Rs per minute



CD-Rs

Inlay and bottom cards



Paper, labels and envelopes

BEAM

Beam Micro Systems Computers & Peripherals Pty. Ltd.
138 Adderley St., Auburn NSW 2144

Phone: (02) 9648 3222

Fax: (02) 9748 2121 Email: joeb@beam-micro.com
Web: www.beam-micro.com

Watch Out!

TARGA drives at full speed!

FREE

Laser Beam Handy Trackball (valued $79)

While stock last

A-Tick Approved

TARGA Visionary 2 Notebook powered by new levels of performance Intel® Pentium® III processor 1.2GHz / Intel® Celeron™ processor 1.2GHz that are built upon 0.13 micron process technology with low thermal dissipation and power consumption

TARGA VISIONARY 2 NOTEBOOK

Intel® Pentium®III Processor 1.2 GHz

- 14.1" TFT Display
- 256MB KingMax RAM (TinyBGA)
- 20GB HDD
- 1.44MB FDD
- 24X CD-ROM
- 56K Internal Fax/Modem (V.90)
- Internal 10/100M LAN
- TV-Out Function
- Li-Ion Smart Battery
- Microsoft® Windows® XP Home Edition
- Lotus Smartsuite® Millennium
- FREE Carry Bag
- FREE 1 Year On-site Warranty**

$3,095*

Intel® Pentium®III Processor 1GHz $2,895*

Intel® Celeron™ Processor 1.2 GHz

- 14.1" TFT Display
- 128MB KingMax RAM (TinyBGA)
- 10GB HDD
- 1.44MB FDD
- 24X CD-ROM
- 56K Internal Fax/Modem (V.90)
- Internal 10/100M LAN
- TV-Out Function
- Li-Ion Smart Battery
- Microsoft® Windows® XP Home Edition
- Lotus Smartsuite® Millennium
- FREE Carry Bag
- FREE 1 Year On-site Warranty**

$2,545*

Options

- Upgrade to Combo (DVD+CD-RW) Add $495
- Upgrade to 8X DVD-ROM Add $165
- Upgrade to CD-RW Add $345

NEW

TARGA VISIONARY M

Your Home Entertainment Centre *Multimedia*

- Intel® Pentium®III Processor 1.2GHz
- 14.1" XGA TFT Display
- 256MB KingMax RAM (TinyBGA)
- 20GB HDD
- 24X CD-ROM
- 56K Modem, 10/100 Lan
- TV-Out Function
- Li-Ion Smart Battery
- Built-in Hardware MP3 Player
- IEEE 1394
- S/P DIF Out
- Microsoft® Windows® XP Home Edition
- Lotus Smartsuite® Millennium
- FREE Carry Bag
- FREE 1 Year On-site Warranty**

4 Times Award Winner

PC Weekly Editors' Choice May/01 HongKong	**PC World** Best Buy Jun/01 Singapore
PC Authority Recommended July/01 Australia	**PC Magazine** Editors' Choice Sept/01 Australia

intel inside pentium®III

TARGA®

As unique as you.

TARGA PCs use genuine Microsoft® Windows®
www.microsoft.com/piracy/howtotell

Australian Distributors:

QDI Computer Pty. Ltd. Tel: (03) 9545 6233 Fax: (03) 9545 6355
E-mail: targa@qditech.com.au Web: www.qditech.com.au
Nuvista Technology Pty Ltd. Tel: (02) 9748 6439 Fax: (02) 9748 6489
E-mail: targa@nuvistatech.com.au Web: www.nuvistatech.com.au

Authorized Dealer:

S.A.	Arcom Computer P/L	(08) 8341 2200
VIC	ComputerCom	1300 555 227
VIC	Daitronics Corporation	(03) 5823 1249
Melb	Computer Hiway	(03) 9326 9765

ACTEBIS®
www.actebis.com.hk
www.targa-online.com.hk
info@targa-online.com.hk

*Prices and specifications are subject to change without notice. All prices shown are inclusive of GST. Delivery charges are excluded.**Certain areas / location with on-site pickup for repair only. TARGA is a registered trademark of Actebis Group.

All brands and product names are trademarks of their respective owners. Intel, the Intel Inside Logo, Pentium and Celeron are trademarks or registered trademarks of Intel Corporation or its subsidiaries in the United States and other countries.

LOOKING FOR A RELIABLE PC SUPPLIER?
YOU CAN COUNT ON PROTAC®

Intel® Pent® III 1.2GHz CPU
14.1" XGA TFT Screen
20GB HDD
128MB SDRAM
128-bit AGP Graphics Accelerator
3D Audio SoundBlaster Compatible
Built-in 8X DVD ROM Drive
Built-in 1.44MB FDD
56K Modem & 10/100 Lan
IEEE 1394 Firewire Port
S-Video TV Output
Infrared Port
Windows XP Home Edition

Intel® Celeron™ 1GHz CPU
14.1" XGA TFT Screen
20GB HDD
128MB SDRAM
Windows XP Home Edition

Intel® Pentium® III 1GHz CPU
14.1" XGA TFT Screen
20GB HDD
128MB SDRAM
Windows XP Home Edition

Intel® Pentium® III 1.13GHz CPU
14.1" XGA TFT Screen
20GB HDD
128MB SDRAM
Windows XP Home Edition

Website: www.protac.com.au
Email: support@protac.com.au

Sydney: 95 Dertry St
Silverwater, NSW 2128
Ph: (02) 8748 8888
Fx: (02) 8748 8800

Melbourne: Unit 7, 2 Sarton Road
Clayton, VIC 3168
Ph: (03) 9560 7188
Fx: (03) 9560 7288

Editor's Choice PC Stream

benchmark IN QUALITY ISO 9002

Genuine A-Tick Approval

intel inside pentium® III

Microsoft Windows xp Professional

PROTAC®

Corporate names & trade marks dated herein are the property of their respective companies

Anyware™

www.anyware.com.au

COMPUTER ACCESSORIES

RESELLERS ONLY

We believe in pictures. Here are some pictures from our product catalogue. We believe in product ranges. That's why we have the best product range of computer accessories in Australia. We also believe in prices. That's why we'll beat any price.To request our full product catalogue, please fax us your details so we can post a catalogue to you. Remember you must be a reseller.

SYDNEY
No 3, 14 Tennyson Road
Gladesville NSW 2111
TEL: 02-9879 5788
FAX: 02-9879 5388

MELBOURNE
42 Henderson Road
Rowville VIC 3178
(Off Laser Drive)
TEL: 03-9763 8200
FAX: 03-9763 8400

PERTH
Unit 2, 9 Leeway Court
Osborne Park WA 6017
TEL: 08-9242 8588
FAX: 08-9242 8688

intel inside pentium® III

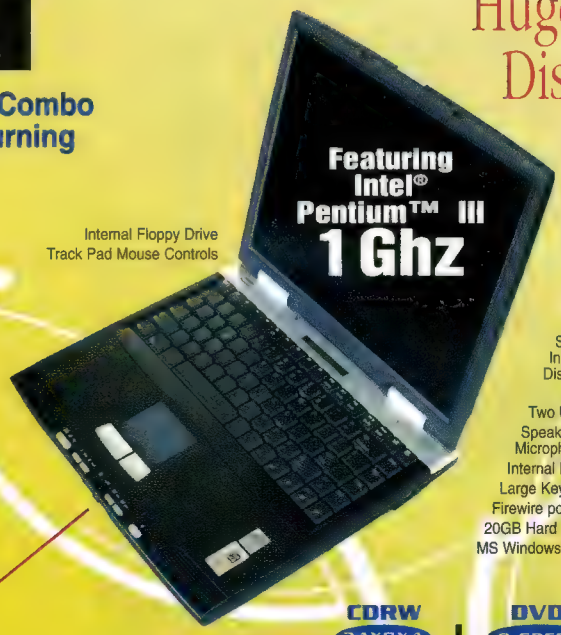
HIGHLANDER™ SERIES NOTEBOOK

Now Featuring DVD and CDRW Combo Drive facilities so that mobile burning solutions are made easy!

Huge 15" Display

the ultimate

Simply Brilliant Design
Complex control features made simple with this smart console interface


Featuring Intel® Pentium™ III 1 Ghz

Internal Floppy Drive
Track Pad Mouse Controls

Smart LED Information Display Panel

Two USB
Speakers and Microphone ports
Internal Floppy
Large Keyboard
Firewire ports
20GB Hard Disk
MS Windows XP

CDRW 24X8X4 + DVD 8 SPEED

Highlander 31 Series Notebook *(featured above)*
HL-31P/100DW-20

INTEL® PENTIUM® III PROCESSOR 1.0 GHZ
20 GB HARD DISK
256 MB SDRAM
24X 8X 4X SPEED INTERNAL CD-RW
8X SPEED INTERNAL DVD ROM
MICROSOFT® WINDOWS XP HOME
1.44 MB FLOPPY DISK DRIVE
56K V90 FAX/DATA MODEM
10/100 NETWORK INTERFACE CARD
2X USB , 1X TV-OUT, 1X FIRE-WIRE PORTS
15" XGA ACTIVE MATRIX TFT SCREEN
LI-ION BATTERY, SMART EXECUTIVE CARRY CASE
1 YEAR WARRANTY (24 HRS RESPONSE)

$3899

Highlander 30 Series Notebook
HL-30P/100W-20

INTEL® PENTIUM® III PROCESSOR 1.0 GHZ
20 GB HARD DISK
256 MB SDRAM
8X SPEED INTERNAL DVD ROM
MICROSOFT® WINDOWS XP HOME
1.44 MB FLOPPY DISK DRIVE
56K V90 FAX/DATA MODEM
10/100 NETWORK INTERFACE CARD
2X USB , 1X TV-OUT, 1X FIRE-WIRE PORTS
14.1" XGA ACTIVE MATRIX TFT SCREEN
LI-ION BATTERY, SMART EXECUTIVE CARRY CASE
1 YEAR WARRANTY (24 HRS RESPONSE)

$3399

Featuring built in CDRW

HIGHLANDER™ SERIES NOTEBOOK

Highlander 226 Series
HL-226P/100D-20

INTEL® PENTIUM® III PROCESSOR 1.0 GHZ
20 GB HARD DISK
256 MB SDRAM
8X SPEED INTERNAL DVD ROM
MICROSOFT® WINDOWS XP HOME
56K V90 FAX/DATA MODEM
10/100 NETWORK INTERFACE CARD
14.1" XGA ACTIVE MATRIX TFT SCREEN
LI-ION BATTERY, SMART EXECUTIVE CARRY CASE
1 YEAR WARRANTY (24 HRS RESPONSE)

$2799

HIGHLANDER™ SERIES NOTEBOOK

Highlander 226 Series
HL-226C/90D-10

INTEL® CELERON™ PROCESSOR 900 MHZ
10 GB HARD DISK
128 MB SDRAM
8X SPEED INTERNAL DVD ROM
MICROSOFT® WINDOWS XP HOME
56K V90 FAX/DATA MODEM
10/100 NETWORK INTERFACE CARD
14.1" XGA ACTIVE MATRIX TFT SCREEN
LI-ION BATTERY, SMART EXECUTIVE CARRY CASE
1 YEAR WARRANTY (24 HRS RESPONSE)

$2399

Featuring 14.1" TFT

DVD ROM
USB PORT

PC Club AUSTRALIA

PC Club Australia Pty Ltd Unit 2a, 17-21 Marquet Street Rhodes NSW 2138
Phone Australia Wide **(02) 9736 2688** or visit us online **www.pc-club.com.au** email info@pc-club.com.au

Highlander Series Notebooks, Highlander LCD Computer, Explorer Series Computers, Enet Systems, Lasonic Home Entertainment are registered trademarks of PC Club Australia Pty Ltd
Intel, the Intel Inside logo and Pentium are registered trademarks and Celeron trademarks of Intel Corporation

YOU HAVE THE POWER

EXTREME PERFORMANCE

AMD Athlon™ PROCESSOR MP

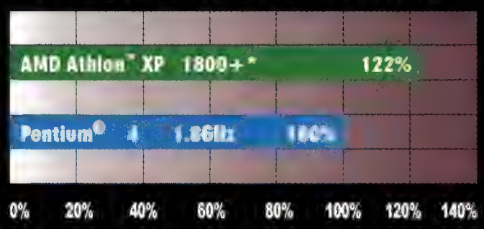
AMD Athlon™ PROCESSOR XP

MP 1500, 1600, 1700, 1800, all Available Now!

XP 1500+, 1600+, 1700+, 1800+, all Available Now!

apd INTERNATIONAL PTY LTD
A.B.N. 88 060 392 556

AMD Athlon™ XP Processor Performance Benchmarks
eTesting Labs Inc. Business Winstone™ 2001, v1.0



AMD Athlon™ MP Processor Performance Benchmarks
Ziff Davis Inc. ServerBench® v4.1

SYDNEY
TEL: (02) 9737-8277
FAX: (02) 9937-8977
Email: salesinquiry@apd.com.au

MELBOURNE
TEL:(03) 9720-0388
FAX:(03) 9720-0399

MELBOURNE
TEL:(03) 9543-7733
FAX:(03) 9544-0654

PERTH
TEL:(08) 9445-9500
FAX:(08) 9445-9450

NEW ZEALAND
P.B Technology
TEL:64-9-526 9200
FAX:64-9-526 9207

NEWCASTLE
TEL:(02) 4957-8220
FAX:(02) 4957-8223

BRISBANE
TEL:(07) 3846-7588
FAX:(07) 3846-7488

ADELAIDE
TEL:(08) 8359-2666
FAX:(08) 8359-2766

AMD, the AMD logo and combinations thereof, are trademarks of Advanced Micro Devices,Inc. Pentium and Celeron are registered trademarks of Intel Coporation. Other product names used in this publication are for identification purposes only and may be trademarks of their respective companies.

Introducing the
AMD Athlon™ XP Processor 2000+

EXTREME PERFORMANCE
FOR WINDOWS® XP

Peripherals Plus®

HERE'S WHAT THE EXPERTS HAVE TO SAY...

"The new Athlon™ XP is a beast in the performance stakes, easily outperforming the Pentium® 4..."

PC Active December 2001

"A feature packed system that is blazingly fast – and for under $3000!"

PC Active December 2001

"With features and performance like this, the AXIS deservedly receives the converted Excellence Award and an A-Listing as the fastest PC to pass through the PC Authority Labs"

PC Authority Excellence Award September 2001

"This 1.4Ghz Athlon DDR system is a well-engineered PC covering all of the bases to make it an excellent high-end multimedia and games performer...this is the fastest home PC we've seen"

PC User Best Buy September 2001

"This was the first time Peripherals Plus submitted a PC to the TestLab for review, and it left a great first impression on us.

PC Magazine Editors Choice August 2001

Alpha G13

AMD Athlon™ XP Processor 1600+ with QuantiSpeed™ architecture
MSI K7N420 nForce Motherboard
Integrated Graphics/Audio/LAN
256MB PC-2100 DDR SDRAM
20GB ATA-100 7200rpm Hard Drive
52x CD Rom Drive
15" Samtron 56E Monitor
Logitech G1 Soundman Speakers
Multimedia Keyboard PS/2
MS Intellimouse Web PS/2
Windows XP™ Home Edition
Lotus Smartsuite OEM
OEM Anti-Virus
1 yr Limited National On Site Wty**

Upgrade to 3 yr Ltd On Site Wty** **$125**

$1549

$69 per month*

Centra E11

AMD Athlon™ XP Processor 2000+ with QuantiSpeed™ architecture
Asus A7V-266E DDR Motherboard
512MB PC-2100 DDR SDRAM
80GB ATA-100 7200rpm Hard Drive
16x DVD Rom Drive
40x24x10 CD-RW
GeForce III Titanium Ti500 AGP
56K PCI V-90 Fax/Modem
19" Hyundai P910 + Monitor
Altec Lansing AVS-500 Speakers
Windows XP™ Professional Edition
Lotus Smartsuite OEM
OEM Anti-Virus
3yr Limited National On Site Wty**

$4095

$169 per month*

ORDER **ONLINE**
www.perplus.com.au
Toll Free **1800 00 PLUS**

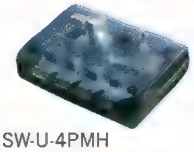
Unit 4, 1B Kleins Road Northmead NSW 2152

All prices include GST and are subject to change without notice. All rights reserved. All other brands and trade marks are the property of their respective owners. All images are for illustrative purposes only. AMD, the AMD logo, AMD Athlon, AMD Duron and combinations thereof are trademarks of Advanced Micro Devices, Inc. *Rental prices are based on a 36 month commercial rental agreement, payable monthly, and excludes extended warranty and insurance. Rental prices include GST, which are subject to confirmation by Flexirent. Rental agreements are subject to Flexirent Trading Terms and Conditions. **On site warranty services are provided by Warranty Assistance Australia (WAA) and insurance underwritten by AON Insurance Ltd. Call WAA on 1300 653 394 to confirm coverage in your area. Errors and omissions excepted.

Swann

For more details visit
www.swann.com.au

Swann Computer Peripherals



SW-U-4PMH

Multi-Hub USB 4-Port Hub

- Easy and convenient access to USB ports - no need to open your computer to install an adaptor card
- Supports bus-powered and self-powered USB peripherals (including printers, scanners, modems, keyboards and mice)
- Allows "Hot Swapping"
- PC & Mac compatible
- 1 year "Hassle Free" warranty

SW-U-MKNP

Multi-Keypad USB Multi Function Numeric Keypad

- Programmable handy multimedia hot keys to access email, internet, control speaker volume and more
- Convenient "0", "00" and "000" keys for quick data entry
- 2 extra USB ports
- Light and compact great for travelling or to fit on the smallest desktop
- PC and Mac compatible

SW-B-OPP

Opti Pro USB Optical Trackball Scroller Mouse

- Precise optical sensor for accurate smooth gliding on almost any surface
- Easy fingertip control with trackball scroller
- Switch between trackball or scroll function
- Software included to customise middle button and magnify feature
- 1 year "Hassle Free" warranty

FireWire Pro DV Kit

Everything you need for easy and fun digital video editing

- Captures full screen video from your camera to your computer's hard drive with transfer speeds of up to 400Mbps
- Complete kit with FireWire PCI Card, comprehensive software and bonus headset and FireWire cable
- 1 year "Hassle Free" warranty

SW-F-FWVWP

Swann Modems

SwannSmart USB Modem

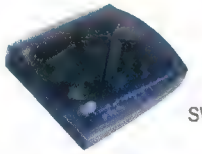
56K V.90 Modem

- Bus powered no need for extra power supply cables
- Compact and innovative design fits on the smallest desktop
- Plug and play installation
- Includes NetTools Internet Toolkit CD ROM
- 5 year "Hassle Free" warranty

SW-M-SSUSBE

Speed Demon 56K V.90 External Modem

- New graphite version!
- Great value for money
- Bonus Telstra '100 hours' Internet Access CD
- Bonus NetTools Complete Modem Toolkit CD
- 1 year "Hassle Free" warranty



SW-M-SDE

SW-M-SSTE

SwannSmart Turbo 56K V.90 External Modem

- Intel Modem chipset
- Crystal clear hands free voice transfer
- Includes NetTools Internet Toolkit CD ROM
- 7 year "Hassle Free" warranty

Swann Security Products

SW-X-SSPYC

Swann SpyCam Miniature Video Camera

- Low cost security
- Tiny size for undetected surveillance
- Easy installation
- Connect to a TV, VCR or security monitor
- 1 year 'Hassle Free' warranty

Swann MicroCam 2.4GHz Wireless Ultra Miniature Camera System

SW-P-MC

- The ideal discreet security system
- Simple to install, just plug to any video device such as a VCR, TV or security monitor and play
- Superior quality colour lens
- Up to 100m transmission range
- 1 year "Hassle Free" warranty

Available from... MYER, MEGAMART by MYER, DAVID JONES, Harvey Norman, Officeworks Superstores, DICK SMITH ELECTRONICS That's where you go!, Tandy, Clive Peeters, HARRIS TECHNOLOGY, Ted's Camera Stores, INGRAM MICRO, CITY SOFTWARE TEL: 1300 658 600, iswh International Software Warehouse

And selected... Betta ELECTRICAL, RETRAVISION

Computer Warehouse Direct Sales

High Quality, Affordable Price

www.cwsydney.com.au Order online 24HRs

CWS GamePro 9000

Genuine AMD Processor,
Asus A7V266-E Motherboard,
512Mb PC-2100 DDR SDRAM,
80 Gb 7200 rpm Ultra -100 HDD,
64M **GeForce 3 Titanium 500**
40x24x10 Re-Writer/Recorder
16x DVD Drive
Creative SoundBlaster Audigy
Cambridge FPS1500 **5p-Speaker**
300W, Stylish ATX Tower Case
CWS Internet keyboard,
Microsoft Intellimouse Web PS/2
Motorola 56k V.90 Fax/Voice.
Win XP CD Home

Athlon XP 1700+ $3055
Athlon XP 1800+ $3185
Athlon XP 1900+ $3294
Athlon XP 1600+ $2985

CWS BusinessPro 8000

Genuine AMD Processor,
Gigabyte 7VTXE Motherboard,
256Mb PC-2100 **DDR RAM,**
40Gb Ultra -100 HDD& 3.5" FDD
64M GeForce II MX,
40x16x10 Re-Writer/Recorder
Integrated 3D Sound,
180W PMPO Stereo Speakers,
300W, Stylish ATX Tower Case
CWS Internet keyboard,MS Mouse
10/100 Network card, 56K Modem
MS **Win XP Pro, Office XP Pro**

Add a Lexmark Colour Printer $5

Athlon 1.3G $2021
Athlon XP 1600+ $2061
Athlon XP 1700+ $2132
Athlon XP 1800+ $2264
Athlon XP 1900+ $2374
Athlon 1.2G $1998

CWS SuperPro 6000

Genuine Intel P4 Processor,
Intel 845 Pro Motherboard,
256b PC-133 SDRAM,
20Gb Ultra ATA-100 HDD
32M TNT II Ultra 4xAGP,
Sony 52xCD-ROM & 3.5" FDD
Integrated 3D Sound,
Stylish 300W ATX tower Case,
CWS Internet keyboard,
Microsoft Intellimouse Web PS/2
480W PMPO Stereo Speakers,
Motorola 56k V.90 Fax/Voice.
Win XP CD Home

Intel P4-1.5G $1320
Intel P4-1.6G $1368
Intel P4-1.7G $1420
Intel P4-1.8G $1495
Intel P4-1.9G $1616

CWS QuamPro 5000

Genuine Intel P4 Processor,
ASUS P4BM Motherboard,
512Mb PC-133 SDRAM,
60Gb Ultra -100 HDD,
64M GeForce II MX 400 TV out,
40x16x10 CD-RW & 3.5" FDD
Integrated 3D Sound,
800W Sub-woofer 3p Speakers,
Stylish 300W ATX tower Case,
CWS Internet keyboard,
Microsoft Intellimouse Web PS/2
Motorola 56k V.90 Fax/Voice.
MS WIN XP Pro, Office XP PRO

Intel P4-1.6G $2220
Intel P4-1.7G $2373
Intel P4-1.8G $2449
Intel P4-1.9G $2571
Intel P4-2G $2953
Intel P4 1.5G $2271

CWS HomePro 3000

Genuine AMD Processor,
Gigabyte 7ZXE Motherboard,
256Mb PC-133 SDRAM,
40Gb Ultra -100 HDD
64M GeForce II MX ,
Sony 52xCD-ROM & 3.5" FDD
Integrated 3D Sound,
600W Sub-woofer 3p Speakers,
Stylish 300W ATX tower Case,
CWS Internet keyboard,
Optical Intellimouse, 56K Modem
MS Win XP CD Home

Upgrade to 40x16x10 CD-RW $100

Athlon 1.3G $1224
Athlon XP 1600+ $1264
Athlon XP 1700+ $1336
Athlon XP 1800+ $1470
Athlon XP 1900+ $1582
Athlon 1.2G $1203

Microsoft Windows xp Professional

Microsoft Office xp

ADD A MONITOR TO SYSTEM

LG:15" $231,17" $326,ViewSonic: 17" E70 $326, Hyundai: 17" V770 $326, 19" $510, Phillips: 17" 107E $363
Hitachi: 17" CM615 $347 ,CM621 (F) $437, 19" Cm715 $629, CM721(F) $715, 21" CM823 $1550,15" LCD $900, 17" LCD $1490
ViewSonic: 15" LCD $775, Hyundai: 15" LCD $870, Mitshbishi: 15" LCD $900, Sony: 15" LCD $1209, 18" LCD $3436

CWS Luxury Series I

Genuine Intel Processors,
Gigabyte 6VTXE Motherboard,
256Mb SDRAM PC-133,
40Gb 7200 rpm Ultra -100 HDD,
Stylish 300W ATX tower Case,
32M GeForce II MX AGP,
1.44Mb, 3.5" Floppy Drive,
Microsoft internet keyboard,
Microsoft Intellimouse PS/2
40x16x10 CD-RW & 56k Modem
Creative **SoundBlaster Live!** Value
Cambridge FPS1000 **5p-Speaker**
WIN XP Pro CD, Office XP PRO

Add a Swann PC Camera $5

Cel-1G $1929
Cel-1.1G $1962
Cel-1.2G $2004
PIII-866 $2061
PIII-1000 $2112
Celeron 950MHz $1917

CWS Luxury Series II

Genuine Intel P4 Processors,
MSI **Intel 850** Pro Motherboard,
256Mb, **RDRAM PC800,**
60Gb 7200RPM Ultra ATA-100 HDD,
Stylish 300W ATX tower Case,
64M GeForce 3 Titanium 200
40x16x10 CD-RW & 3.5" FDD
CWS Internet keyboard,
Logitech **Optical** Intellimouse,
Integrated 3D AC97 Audio,
Cambridge FPS1000 **5p-Speaker**
Motorola 56k V.90 Fax/Voice.
MS Win XP CD Home

Intel P4-1.6G $2257
Intel P4-1.7G $2309
Intel P4-1.8G $2384
Intel P4-1.9G $2505
Intel P4-2G $2887
Intel P4 1.5G $2200

CWS RaidPro 7000

Genuine Intel P4 Processors,
ABIT TH7II-**RAID** Motherboard,
256Mb, **RDRAM Pc800,**
80Gb 7200RPM Ultra ATA-100
64M GeForce 3 Titanium 200
16x DVD-ROM & 3.5" FDD
Creative **SoounBlaster 5.1 SE**
CWS Internet keyboard,
Microsoft Intellimouse Web PS/2
Integrated 3D AC97 Audio,
800W Sub-woofer 3p Speakers,
Motorola 56k V.90 Fax/Voice.
MS Win XP CD Home

Intel P4-1.6G $2948
Intel P4-1.7G $3010
Intel P4-1.8G $3098
Intel P4-1.9G $3241
Intel P4-2G $3692
Intel P4 1.56HZ $2891

Economic Series I

Genuin Ientel Processor,
ASUS TUSI-M or A7VL133 MB,
128Mb PC-133 SDRAM,
20Gb Ultra100 IDE HDD,
1.44Mb, Floppy Drive,
64Mb share On-board video,
CWS PS/2 Keyboard
2 Button PS/2 Mouse, USB Ports,
Asus 50x CD-ROM,
Integrated 3D Sound & Lan,
Motorola 56k V.90 Fax/Voice.
180W PMPO Stereo Speakers,
300W ATX Tower Case,
MS Win XP CD Home

Cel-950 $915
Cel-1G $929
Cel-1.1G $962
Duron 900 $919
Duron 1G $945
Duron 1.1G $972
Celeron 900MHz $878

CWS Luxury Series III

Genuine AMD Processor,
Asus A7A266-E Motherboard,
512Mb PC-133 SDRAM,
40 **Gb** Ultra -100 HDD,
64M **GeForce 3 Titanium 200**
40x24x10 Re-Writer/Recorder
16x DVD Drive
Creative SoundBlaster Live
Cambridge FPS1000 **5p-Speaker**
300W, Stylish ATX Tower Case
CWS Internet keyboard,
Microsoft Intellimouse Web PS/2
Motorola 56k V.90 Fax/Voice.
Win XP CD Home

Athlon XP 1700+ $2226
Athlon XP 1800+ $2357
Athlon XP 1900+ $2465
Athlon XP 1600+ $2156

CWS Notebook PowerA	Intel P-III 1.2GHz, 14.1"TFT, 128MB, 20GB, 8X DVD, Win XP -Home	$2899
CWS Notebook PowerA	Intel P-III 1.2G, 14.1"TFT,128MB, 20GB, 24X CD-ROM,Win XP-Home	$2783
CWS Notebook PowerA	Intel P-III 1G, 14.1"TFT, 128MB, 20GB, 8X DVD, Win XP-Home	$2690
CWS Notebook PowerA	Intel P-III 1G, 14.1"TFT,128MB, 20GB, 24X CD-ROM,Win XP-Home	$2574
CWS Notebook PowerA	Intel Cel 1.2G, 14.1"TFT, 128MB, 20GB, 8X DVD, Win XP-Pro, Office XP Pro	$3031
CWS Notebook PowerB	Intel Cel 1.2G, 14.1"TFT,128MB, 20GB, 24X CD,Win XP-Pro, Office XP Pro	$2915
CWS Notebook PowerB	Intel Cel 1G, 14.1"TFT, 128MB, 20GB, 8X DVD, Win XP-Pro, Office XP Pro	$2950
CWS Notebook PowerB	Intel Cel 1G, 14.1"TFT,128MB, 20GB, 24X CD-ROM,Win XP-Home	$2272
CWS Notebook PowerB	Intel Cel 900, 14.1"TFT,128MB, 20GB, 24X CD-ROM,Win XP-Home	$2122

Microsoft Office xp

AMD Server Choices
Tyan USA, Tiger MP Dual Athlon
MP 2460, 2 xAMD Athlon Mp1600+
CPU **Only $1418**

Free
MS Encarta 2001
Internet Access*
*With System Purchase

Special Items
With System Purchase
Cambridge SW320 3p- Speaker $70
Cambridge FPS1000 5p-Speaker$95
Boston **Digital** BA7500 speaker $180
Pioneer DVD-R/RW(DVR-A03)$1395
Epson C40UX Printer $140
Canon BJC-1000SP Printer $95
Canon BJC-2100SP Printer $125
Canon N660U Scanner $230
Acer 3300U scaner $85

Microsoft Windows xp Professional

Computer Warehouse Sydney P/L. Any system variation, please call our sales team. **WEB SITE:** www.cwsydney.com.au
EMAIL: sales@cwsydney.com.au **TRADING HOURS:** Mon to Fri 9:30am-6:30pm Sat: 10:00am-3:00pm
Tel: (02) 95192888, **Fax:** (02) 95192700, **ADDRESS:** 3/53-57 Burrows RD, Alexandria, NSW 2015
BANK DETAIL: National Bank at Mascot, ACCOUNT#:45902 5367 BSB#: 082282

pc world best buys

Warranty:All system come with 12 months parts and 5 years labour RTB Warranty. All prices include GST, exclude freight costs, and are subject to change without notice. Payment terms are C.O.D, cash, cash D/D, money order, bank cheque..Trademarks & Logos are the property of the respective owners.

Microsoft Windows xp Professional

Microsoft Office xp

A Great Combo on your New PC

Microsoft Office XP:
- Word 2002
- Excel 2002
- Outlook 2002
- Publisher 2002
- *Powerpoint 2002
- *Access 2002*

*Only in Office Professional

www.microsoft.com/office

Proudly brought to you by the team at LinuxWorld.com.au

Linux MiniBook

ONLY $17.95 INCLUDING GST

NEW EDITION
160 pages
4 CDs

Red Hat 7.1 (2 CDs)
the latest to install or upgrade

Linux Mandrake 8.0
the latest to install or upgrade

Advanced Coverage
shell use, system monitoring, the Kernel and development tools

Latest Applications
StarOffice 5.2, Ximian GNOME 1.4 VMWare trial, IBM Java 2 SDK 1.3, Netscape 6.01, 350 How-To 15 free e-books, Apache, PHP PostgreSQL

Includes
Install or upgrade Linux, Windows, Linux dual boot, Connect to the Internet, Configure sound, printer & scanners, Network two or mo PCs, Run Windows apps

Available now at leading newsagents

Or order online through our secure Web site
http://www.linuxworld.com.au/minibook
Order by phone: 1800 248 811

AUSTRALIAN

pc world shopper

Please Phone (02) 9902 2725 or Fax (02) 9906 4684 to book your PC Shopper advertisement

www.newreality.com.au www.newreality.com.au www.newreality.com.au www.newreality.com.au www.newreality.com.au www.newreality.com.au www.newreality.com.au www.newreality.com.au www.newreality.com.au

SUPERIOR PERFORMANCE INKJET REFILL KITS

REFILL & SAVE AT LEAST 80% OFF PRINTING COSTS

REUSE RECYCLE REFILL

We stock a large range **specialty paper** and media including **High Resolution, Full Gloss, Clear Film** and **Magnetic Paper.**

Why not try New Reality's *'Easy-to-Use'* **Inkjet Cartridges,** available for all major brands of printers. **Enquire today!**

Your printer not listed? We stock Australia's largest range of printer consumables. Call Now!

BLACK REFILL KITS FROM ONLY $24.90

DESCRIPTION (Kits Compatible with Printers listed below)	No. of Refills	Product Code
CANON BJ-30	60	20-BKL
CANON BJC-50/55/70/80/85/85W	60	21-BKL
CANON BC-01/02/BJ-10E/20/200/BJC-210/240/255/265/1000	9	3-BKL
CANON BJC-600/610/620	16	5-BKL
CANON BJC-2000/4000/4100/4200/4300/4550/5000/5500 BCI-21	45	19-BKL
CANON BJC-2000/4000/4100/4200/4300/4550/5000/5500 BC-20	8	18-BKL
CANON BJC-3000/6000/6200/6500/8000 & S400/S500 Series	12	46-BKL
CANON BJC-7000/7100 Series - Including Optimiser!	8	43-BKL
CANON BJC-8200 & S800 Series	6	52-BKL
HP Desk Jet 400/500 Series	8	8A-BKL
HP Desk Jet 600/660/690 Series	8	8B-BKL
HP Desk Jet 700/800/900/1000/1100/1200 Series	8	29-BKL
HP Desk Jet 300 Series & Olivetti JP's!	12	7-BKL
EPSON Stylus 400/800/600+/1000	12	1-BKL
EPSON Stylus Colour /PRO/XL	12	2-BKL
EPSON Stylus 820/colour II/IIs	12	23-BKL
EPSON Stylus Colour 200/300/400/500/600/800/850/1520	12	33A-BKL
EPSON Stylus Colour 440/460/480/640/660/670/700/720/740/760/900/1160	12	33B-BKL
EPSON Stylus Colour 680/777/780/785/870/880/875/890/1270/1280	12	Please Call!
LEXMARK 4076/1000/1020/2000/2030/2050 Series	6	35A-BKL
LEXMARK 3000/5000/5700/7000 Series	6	35B-BKL
LEXMARK Z11/Z12/Z22/Z31/Z32/Z42/Z51/Z52 & Other Z Series	6	35C-BKL

Easy to use Refill Kits also available for Apple, Brother, Samsung, Sharp and Xerox Printers, Multifunction & Fax Machines...CALL NOW!

BUY 3 GET 1 FREE

Black kits include superior, dense & sharp black inks!

COLOUR REFILL KITS FROM ONLY $34.90

DESCRIPTION (Kits Compatible with Printers listed below)	No. of Refills	Product Code
CANON BJC-50/55/70/80/85/85W	3x30	22-CLR
CANON BJC-210/210SP/240/255/265/1000	3x8	25-CLR
CANON BJC-600/610/620	3x8	10-CLR
CANON BJC-2000/4000/4100/4200/4300/4550/5000/5500 BCI-21	3x30	17-CLR
CANON BJC-3000/6000/6200/6500/8000 & S400/S500 Series	3x8	47-CLR
CANON BJC-8200 & S800 Series	3x6	53-CLR
HP Desk Jet 300/400/500 Series & Olivetti	3x12	14A-CLR
HP Desk Jet 600C/660C/690C Series	3x12	14B-CLR
HP Desk Jet 850C/855C/870C/1000C Series	3x3	30A-CLR
HP Desk Jet 710/720/890/900 Series	3x3	30B-CLR
EPSON Stylus Colour /PRO/XL	3x4	16-CLR
EPSON Stylus 820/colour II/IIs	3x12	24-CLR
EPSON Stylus Colour 200/300/400/500/600/800/850/1520	3x12	34A-CLR
EPSON Stylus Colour 440/460/480/640/660/670/700/720/740/760/900/1160	3x12	34B-CLR
EPSON Stylus Colour 680/777/780/785/870/880/875/890/1270/1280	3x12	Please Call!
LEXMARK 4076/1000/1020/2000/2030/2050 Series	3x6	36A-CLR
LEXMARK 5000/5700/7000 Series	3x6	36B-CLR
LEXMARK Z11/Z12/Z22/Z31/Z32/Z42/Z51/Z52 & Other Z Series	3x6	36C-CLR

Easy to use Photo Realistic Refill Kits available for all Canon, Epson, HP & Lexmark Photo Quality Printers..... CALL NOW!

BUY 3 GET 1 FREE

Colour kits include magenta, cyan & yellow inks!

All brand and product names are registered trademarks of their respective owners and used solely for descriptive purposes.

USING NEW REALITY'S INKJET REFILL KITS WILL NOT VOID YOUR PRINTER'S WARRANTY. BEWARE OF INFERIOR COPIES, BUY THE "ORIGINAL" AUSTRALIAN REFILL KIT!

New Reality has no affiliation with any printer manufacturers or OEM's and nor has any arrangement been made with them to form the basis of any statements we make.

New Reality COMPUTER SUPPLIES

New Ideas, New Products.... New Reality

Dealers wanted in all states and NZ!

For more information please call.

New Reality Resources Pty. Ltd. ACN - 073 906 013
Australia Wide FREECALL - 1800 680 605
Fax - (07) 3245 2755

Bayside Business Park
Shop 1 / 70 Redland Bay Rd
Capalaba Q 4157

General Enquiries - (07) 3245 2411

FREE CATALOGUE WITH EVERY PURCHASE

SATISFACTION 100% GUARANTEED

Freecall ORDER HOTLINE 1800 680 605

www.newreality.com.au

FREE AUSTRALIA WIDE DELIVERY! SAME DAY DISPATCH!!

COD * MONEY ORDER * CHEQUE * MASTER * VISA * BANKCARD * AMEX ACCEPTED

Web Site Hosting

free trial available !!

Everything you need to build a successful Website

- integrated ecommerce
- maximum reliability
- technical support
- control panel
- friendly service
- affordable plans
- dedicated servers

50mb of webspace •
yourdomain.com.au •
MS FrontPage™ 2000 •
instant account setup •
pop3 email accounts •
128bit secure server •
email forwarding •
mysql database •
full ftp access •
99.9% uptime •
30 day guarantee •
resellers welcome •

from **$14.95** per month

Server101.com
webhosting & ecommerce

ph: 07 3876 6101
fax: 07 3876 3101
www.server101.com
info@server101.com

Call us today or visit our website to enquire about our current specials

AUTHORIZED EDUCATION SOFTWARE RESELLERS THE MOST COST EFFECTIVE ON MICROSOFT'S OPEN LICENSE PLAN! ACCREDITED MICROSOFT SYSTEM BUILDER

Microsoft Open License

Microsoft Windows xp Professional

Microsoft Office xp
www.microsoft.com/office

Are you looking for the **Ultimate Combo** for your new PC?
We will build a PC to your specs and needs
1Ghz/128Meg/20Gig/Windows XP/Office XP with 17" Monitor from Only $1499

WE WILL NOT BE BEATEN ON PRICE FOR ANY MICROSOFT LICENCE

Office & Word processing systems
Microsoft XP includes; Word 2002, Excel 2002, Outlook 2002, Publisher 2002, PowerPoint 2002* and Access 2002*. *Only in Office Professional

MS Office XP STD From	$110.00
MS Office XP Pro From	$155.00
MS Office XP Dev From	$280.00
MS Office For MAC From	$100.00
MS Excel 2002 From	$75.00
MS Word 2002 From	$75.00
MS Access 2002 From	$80.00
MS PowerPoint 2002 From	$80.00
MS Office XP Pro/FrontPage From	$175.00
MS Outlook 2002 From	$35.00

Server & Network Products

MS Windows 2000 Server From	$250.00
MS Windows Advanced Server From	$980.00
MS Windows SBS From	$2100.00
MS Exchange Server From	$630.00
MS SQL Server From	$720.00
MS ISA Server From	$1453.00

Operating Systems

MS Windows XP Home From	$140.00
MS Windows XP Pro From	$180.00

MS Office 5 for 3 OFFER

Communications

Symantec Winfax Pro V10 From	$55
Symantec PC Anywhere V10(H&R) From	$85
Norton Firewall 2002	$105

Backup Software

Backup Exec NT 2000 V8.6	$1300
Backup Exec V8.6 Exchange Agent	$1300
Backup Exec V8.6 SQL Agent	$1300
ARCserve Workgroup	$1200
ARCserve Exchange Agent	$1650
ARCserve Open File Agent	$1350

Delivery charge $16.50 per order **All prices include gst.**

If the Software you need is not on this list please call or email us ASAP.

PowerSoft
Powertrack Australia Pty Ltd ABN 46 080 143 791 trading as PowerSoft

Microsoft® authorised company

Ph: 1300 763 848
Email: sales@powersoft.com.au

Mobile: 0418 598 230 (All Hours) - 0413 336145 (weekdays)

TOSHIBA Notebook

Satellite 1800	Cel 800, 192M, 10G, 13.3"TFT, 24XCDROM, WINME, 56K	$2318
Satellite 1800	PIII 1G, 192M, 20G, 14.1"TFT, 8XDVD, WIN XP H, 56K	$3172
Satellite 3000	PIII 1G, 192M, 20G, 14.1"TFT, 8XDVD, WIN XP H, LAN & 56K	$3787
Satellite Pro 4600	PIII 900, 256M, 20G, 14.1"TFT, 8XDVD, WIN98, LAN & 56K	$3430
Satellite Pro 4600	PIII 900, 256M, 30G, 15"TFT, 8XDVD, WIN98, LAN & 56K	$4088
Satellite Pro 4600	PIII 1G, 256M, 30G, 14.1"TFT, 8XDVD, WIN98, LAN & 56K	$3898
Portege 4000CT	PIII 750, 256M, 20G,12.1"TFT, WIN98,Wireless LAN	$4611
Tecra 9000	PIII-1G , 256M,30G, 14.1"TFT, WIN98, DVD/CD-RW, 56K,98	$7564
Tecra 9000	PIII 933, 256M,20G, 14.1"TFT, DVD, 56K, Lan Wireless, Win 98	$7302
Tecra 9000	PIII 866, 256M,20G, 14.1"TFT, DVD, 56K, Lan, Win 98	$5315

IBM ThinkPad Notebook

I series	Cel700, 64M, 10G, 13.3"TFT, 24XCDROM, WINME, 56K	$2,017
A22e	Cel800, 64M, 15G,13.3"TFT, 24XCDROM, WIN98, LAN & 56K	$2,628
A22e	Cel800, 64M, 15G, 14.1"TFT, 24XCDROM, WIN98, LAN & 56K	$2,828
A22m	PIII1G, 256M, 30G, 14.1"TFT, 8XDVD, WIN98, LAN & 56K	$3848
T22	PIII900, 256M, 20G, 14.1"TFT,8XDVD, WIN98, LAN & 56K	$ 5,103
X21	PIII700, 128M, 20G, 12.1"TFT, WIN2K, LAN & 56K,	$ 3,752

COMPAQ Notebook

Armada 110	Cel 850, 128 M RAM, 10G, 24X CDROM, 12.1" TFT, 56K, WIN ME	$1994
Armada 110	Cel 700, 192M RAM, 10G, 24X CDROM, 14.1" TFT, 56K, LAN,WIN ME	$2137
Armada 110	P3 850, 128M RAM, 20G, 8X DVD, 14.1" TFT, 56K,Lan, WIN ME	$2914
Armada E-VO	P3-1066 , 192M RAM, 20G, DVD, 14.1" TFT, 56K, Lan WIN 98/ME	$5962
Armada E500	P3 850, 256M RAM, 20G, DVD, 15" TFT, 56K, 10/100, WIN 98	$4092
Presario1200	P3 800, 64M RAM, 15G, 24X CD, 13.3" TFT, 56K, WIN ME,	$2298
Presario1400	P3 800, 192M RAM, 10G, 6xCDROM, 13.3" TFT, 56K Lan, WIN ME	$2367
Presario1700	P3 650, 192M RAM, 10G, 24 CD, 13.3" TFT, 56K, LAN, WIN 98	$2252
Presario1700	P3 800, 256M RAM, 15G, 6X DVD, 13.3" TFT, 56K, LAN, TV OUT, WIN ME	$3575
Presario1700	P3 850, 256M RAM, 20G, 6X DVD, 14.1" TFT, 56K, LAN, WIN ME	$3563

CWS

www.cwsydney.com.au
Computer Warehouse Sydney
3/53-57 Burrows RD,Alexandria NSW 2015
Tel:(02)9519 288, Fax:(02)9519 2700

OnMyWeb.net

A subsidiary of Accsoft Internet Services

The dawn of a new era

It's a game of Quick and Slow, not Big and Small!
Put your business online, not on the line!
Not just a web site, *OnMyWeb* Site!

ACCSOFT
Providing Quality Internet Services Since 1995 with access points in all states and territory around Australia

We don't just give you tools, we do it for you.
We build your web site, and host it online.
We place your site under busy traffic, so business comes quick.
We process your online money, with bullet proof security.
We help in order fulfilment, as well as management.
We let you take control, which areas at your site visitors can go.
We connect you to the net, and show you what to do step by step.
We are talking about a piece of cake, not an arm and a leg.

BusinessTotalConnect
Permanent Line 24 hrs ISDN/Modem
Office Saver: 12 hrs/day option
name@yourcompany.com.au
www.yourcompany.com.au

Dial-up 56K Access
Reliable and fast
No download limit
On-web mail access
6 e-mail addresses per user
Prepaid by hours, no use-by date with frequent user bonus, or
Prepaid by months, all you can surf

Simply Experience the Difference

http://www.onmyweb.net
Suite F1 Citymark Bldg, 683-689 George St, Sydney NSW 2000
Tel: (02) 9281 8163 Fax: (02) 9281 8621
Open 7 Days

http://www.accsoft.com.au
Please check our web site or ring for coverage and service details.

Diskette Duplication CD Replication

Consider the advantages of using one supplier for all your software needs....
Fast Turnaround, Low Cost.

- Diskette Duplication
- Software Packaging
- Direct Disk Printing
- Label Printing
- Disk & CD-ROM Duplication Equipment
- Printing of Manuals & Boxes

We can provide colour printed CD booklets, CD screen printing, Art preparation, Corporate logo CD printing and CD pressing.
CD -ROM, CD Audio and CD-Video formats supported.
Ask about our package deals which includes screen print 2 page full colour booklet and tray insert.

ISD
INDEPENDENT SOFTWARE DUPLICATION
Unit 22/7 Packard Avenue, CASTLE HILL NSW 2154 AUSTRALIA
Phone: (02) 9899 4044 Fax: (02) 9899 4085 Email: sales@copysoft.com.au

Continuing excellence since 1984

INKJET CARTRIDGE REFILL KITS

Black KITS FROM **$24.90**

Colour KITS FROM **$36.90**

Special offer
BUY A MIX OF ANY 3 KITS, GET THE FOURTH FREE

UP TO 60 REFILLS PER KIT & over 400 KITS AVAILABLE

Printer not listed ??? Then Call us

Cartridge Refill Kits	No of Black refills	No of colour refills
CANON BJ10/BJ200/BJ30/50/70/80/85/85W	30/80	30
CANON BC01/BC02/BC03/BX03/BJ300/BJ330	6/8	6
BJC/210/240/255/265/BJC1000	6/8	6
CANON BJC-4000/4100/4200/4310/4550/BC-20	6/60	30
CANON BJC-600/620/620	12	6
CANON BJC-800/820/880	8	6
CANON BJC-5000/5100/5500	6/60	30
CANON 3000/6000/8200/S400/S450/S600/S800	12	6
CANON BJC-7000/7100 WITH OPTIMISER	2	6
EPSON STYLUS 800/800+/1520/1000/400/300	12	12
EPSON STYLUS CLR. PRO/XL/820/11/11S	12	12
EPSON STYLUS CLR 200/400/600/700/1200/EX	12	12
EPSON STYLUS CLR 440/460/480/580/640/660/670	12	12
EPSON STYLUS CLR 680/740/880/890/1270/1290	12	12
EPSON STYLUS CLR 777/870	12	12
HEWLETT PACKARD DESKJET 400/500/600 SERIES	6	12
HEWLETT PACKARD 700/800/900/1100/1200 SERIES	6	6
HEWLETT PACKARD multi-function	6	6
LEXMARK/IBM 4076/1020/2030/2050/2070	6	12
LEXMARK/IBM 1100/1200	6	12
LEXMARK 3200/5700/5770/7200/Z11/Z13	6	12
LEXMARK Z12/Z22/Z32/Z42/Z43/Z51/Z52/Z53	6	12
BROTHER MFC-7150 / 7160 / LC02BK/M/Y/C	6	6
SAMSUNG M10 SERIES	10	12
OLIVETTI JP150/250/350/360/450/3100	6	6
SHARP PRINTERS, all models		
APPLE MAC PRINTERS		

INKJET PAPER PRODUCTS

CODE	PRODUCT DESCRIPTION ALL DESIGNED FOR INKJET PRINTING	SIZE	SHEETS	RRP
141204	ARTIST WATER COLORPAPER 200GSM EMBOSSEDPATTERN	A4	20	$21.90
241208	PREMIUM QUALITY PHOTOGLOSS LAB PAPER 260 GSM	A4	25	$49.00
241208	PHOTO GLOSSY WHITE FILM (100UM)	A4	20	$25.20
311208	PHOTO GLOSSY PAPER 160GSM MAKES ANY INK WATERPROOF	A4	20	$27.40
261152	PHOTO GLOSSY GREETING CARDS WIE WATER RESISTANT	A4	15	$19.70
251153	TRANSPARENCY FILM (100UM)	A4	15	$21.90
121083	SILVER REFLECTIVE FILM (150UM)	A4	8	$21.90
111082	ARTIST CANVAS (200GSM)	A4	8	$21.90
132087	POLY SILK ADHESIVE BACKED FABRIC (100 GSM)	A4	8	$21.90
321108	CLEAR WINDOW DECAL - STICKS TO GLASS	A4	8	$21.90
341106	T-SHIRT EASY IRON ON TRANSFER PAPER PEEL OFF WHEN COLD	A4	10	$21.90
271084	HI RESOLUTION PREMIUM MATTE PAPER - WATER RESISTANT	A4	100	$16.50
131059	BANNER PAPER! EACH BANNER UP TO 42 METRES LONG X A4 WIDE	A4	5	$21.90
141034	DESIGN A MAG - FRIDGE MAGNETS	A4	3	$21.90
142109	CD LABEL (STARTER KIT) SOFTWARE & 2 SAMPLES OF EACH TABLE	6.25 X 11	10	$38.50
137082	CD LABELS (FUN KIT)	6.25 X 11	8	$27.50
136108	CD LABELS (RAINBOW REFILL)	6.25 X 11	10	$27.50
138102	CD LABELS (GALAXY REFILL)	6.25 X 11	10	$27.50
139102	CD LABELS (STARBURST REFILL)	6.25 X 11	10	$27.50
141102	CD LABELS (CRYSTAL REFILL)	6.25 X 11	10	$27.50
140105	CD LABELS (PHOTO GLOSSY REFILL	6.25 X 11	10	$27.50
241031	DESIGN A MAGNETIC - BUSINESS CARD	A4	3	$30.50
133153	BUSINESS CARDS 2 SIDED GLOSSY-MATTE	216 x 297	20	$29.90

CARTRIDGES *

DESCRIPTION	OEM CARTRIDGE	CODE	R.R.P.
CANON BJ30/BJC70/ BJC80	BCI-11 BLACK	4235K	$8.80
CANON BJ30/BJC70/ BJC80	BCI-11C COLOR	4239A	$13.20
CANON BJ30/BJC70/70/BJC80 H/C	BCI-10 BLACK	4229K	$11.00
CANON BJ300	BJI 642 BLACK	2031K	$8.80
CANON BJC-600 two per pack	BJI 201 BLACK	4096K	$15.40
CANON BJC-600 two per pack	BJI 201C/CYAN	4096C	$13.00
CANON BJC-600 two per pack	BJI 201Y/YELLOW	4096Y	$13.00
CANON BJC-600 two per pack	BJI 201M/MAGENTA	4096M	$13.00
CANON BJC-600 HI - CAPACITY	BJI 201 BLACK	4097K	$8.90
CANON BJC-800	BJI 643 BLACK	2290K	$14.30
CANON BJC-800 cyan / magenta / yellow	BJI 643 /cyan / yellow/ magenta	2290C/M/Y	$14.30
CANON BJC-4000	BCI21 / BLACK	4136K	$9.90
CANON BJC-4000	BCI21C / 3 COLOR	4152A	$13.90
CANON BJC-6000	BCI-3BK / BLACK	3487K	$16.90
CANON BJC-6000 cyan / magenta / yellow	BCI-3 / M/ Y / C	3487M/Y/C	$11.90
CANON BJC-6000 photo cyan / magenta / black	BCI-3PC / CYAN phot o	348BP/CP/MP	$11.90
CANON BJC-8200 - BL ACK	BCI-5BK	4373K	$11.90
CANON BJC-8200 - COL OURS INCL. PHOTOS	BCI-5/OM/Y/OCPM	4373C/M/Y/PC/PM	$11.90
EPSON STYLUS COLOR 11 / 820	S020047 / BLACK	4237K	$12.00
EPSON STY. COLOR400/500/600/700	S020093 / BLACK	4333K	$16.50
EPSON STY. COLOR440/640/670/720/750	S020187 / BLACK	2556K	$17.60
EPSON STY. COLOR480 / 580 / C20UX / C40UX	T-013 / BLACK	7001K	$16.00
EPSON STY. COLOR480 / 580 / C20UX / C40UX	T-014 / COLOUR	7001A	$25.00
EPSON STY. COLOR 680 NEEDS ILRS.	T017	5533K	$34.90
EPSON STY COLOR 680 NEEDS ILRS.	T018	5543A	$34.90
EPSON STY COLOR 680 ILRS. SYSTEM	T017 & T018 & Chip programmer	5573Z	$85.00
EPSON STY. COLOR 880	T019 / BLACK	7002K	$20.00
EPSON STY. COLOR 880	T020 / COLOUR	7002A	$29.90
EPSON STY. COLOR PHOTO 870 / 875 / 880 / 1270	T007 BLACK NEEDS ILRS	5363K	$35.00
EPSON STY. COLOR PHOTO 870 / 875 / 890	T008 COLOR NEEDS IRLS	5373A	$33.00
EPSON STY. COLOR PHOTO 870 / 875 / 890 / 1270	T007 & TOO8 & Chip Programmer	5363K	$35.00
EPSON STYLUS COLOR 740/760/860	S020189 / BLACK	2557K	$18.70
EPSON STYLUS COLOR 900	T003011 / BLACK	2729K	$22.00
EPSON STYLUS 800	S020025 / BLACK	4071K	$12.20
EPSON COLOR800/850/1520	S020108 / BLACK	4413K	$14.40
EPSON STYLUS COLOR 1500	S020062 / BLACK	4315K	$26.40
EPSON SQ1170	BLACK	4130K	$20.00
EPSON STYLUS COLOR / COLOR PRO	S020036 / 3 COLOR	4123A	$24.20
EPSON STYLUS COLOR 11 / PRO	S020049 / 3 COLOR	4238A	$24.20
EPSON STY.CLR 500	S020097 / 3 COLOR	4334A	$22.00
EPSON STY.CLR 400/600/800/850/1520	S020089 / 3 COLOR	4414A	$24.20
EPSONSTY 440/640/740/670/760/660/1160	S020191 / 3 COLOR	2558A	$26.40
EPSON STY.CLR PHOTO 720 / 750	SC020193 FIVE COLOUR	3383A	$28.60
EPSON STY.CLR 900 / 9 80	T005011 / 3 COLOR	2769A	$24.00
EPSON STY.CLR PHOTO EX / 700	S020110 / 5 COLOR	4412A	$26.00
EPSON STY.CLR COLOR 1270 ILRS	T007 & T009 & CHIP PROGRAMMER	7003Z	$85.00
EPSON STY.CLR COLOR 1270	T009 FIVE COLOUR REFILLABLE	7003A	$36.00
EPSON STY.CLR COLOR 1200	T001011 / 5 COLOR	2769 P	$26.00
EPSON STY.CLR 3000 / 5000	S020118 /blackcyanyellowmagenta	4448K/C/M/Y	$22.00

www.easyrefills.com.au

AUSTRALIAN MADE

*FREE DELIVERY AUSTRALIA WIDE

ITS CHILD'S PLAY

www.easyrefills.com.au

FREE CALL 1300 730018

VISA - MASTERCARD - BANKCARD - C.O.D. CHEQUE

Easy - REFILLS

P.O. Box 1042, Capalaba, Qld. 4157
26 Guyana Court, Capalaba, Qld. 4157

EMAIL: sales@easyrefills.com.au
ph 07 32454174 fax 07 3245 4160
hours 8 till 5:30 Mon. - Fri & Sat till 2pm

Cut your printing costs by up to 80% and SAVE

COLOUR AT MONO PRICES!!!

24 ppm mono, 12 ppm colour, 6 ppm full colour
Up to 2400 dpi - great print quality
Network ready
Simple installation
Windows & Mac
ON-SITE WARRANTY
Unlimited FREE Help Desk Support
Low running costs

Tally®

from $2,537*

Call 1800 062 789 NOW!

*When you take out 36 month Totalcare Support Plan. Price Includes GST. Call us for our other SPECIAL OFFERS, Demonstration Units, etc.

Government Endorsed Supplier
Supplier No. 1832

Affordable & feature-packed **Web Hosting**

www.avantihosting.com.au

Avanti Hosting features:
- POP3/IMAP email accounts
- Access to your email accounts over the web through any browser
- Email forwarding
- Full FTP access
- PHP Embedded Scripting
- MySQL Database
- Server Side Includes
- Private cgi-bin
- Active Server Pages (ASP)
- Website statistics
- Nightly Backup

New
Check out our Instant Websites

Free 30 day trial accounts

Prices start from:
$44 annually for domain name parking (including up to 5 email accounts)
$242 annually for web hosting

Avanti Hosting
Email: info@avantihosting.com.au

MEMORY and CD-ReWritables

RICOH 20x10x40 CD-REWRITABLE (2 year warranty) $240

MANUFACTURERS/MODELS/SIZES		
APPLE – G3/G4 – DESKTOP	256MB	$105
COMPAQ – ARMADA M300, M700	128MB	$100
COMPACT FLASH CARD	32MB	$53
COMPACT FLASH CARD	64MB	$86
GATEWAY SOLO	64MB	$79
HP – LASERJET 8000	64MB	$90
IBM – APTIVA 2164	128MB	$82
IBM – THINKPAD 600X, 570E	128MB	$90
TOSHIBA – 8000 PIII	128MB	$90
TOSHIBA – 4270XDVD	128MB	$90
TOSHIBA – SAT.PRO 4300 SERIES	64MB	$67
TOSHIBA – TECRA-8000	128MB	$112

SDRAM	
64Mb (8x64) PC133	$43
64Mb (8x64) PC100	$43
128Mb (16x64) PC133	$54
128Mb (16x64) PC100	$68
256Mb (32x64) PC133	$105
512Mb (64x64) PC133	$853
NOTEBOOK SDRAM	
128Mb (16x64) PC100	$77
256Mb (32X64) PC100	$195
SIMMS 72 PIN	
16Mb EDO 60ns	$59
32Mb EDO 60ns	$81
SIMMS 30 PIN	
4Mb Parity	$17

LIFETIME WARRANTY

www.pelhampl.com.au
O/Nite delivery $11. Credit cards welcome.
PRICES SUBJECT TO CHANGE. PLEASE CALL FOR LATEST Prices as at 11th December, 2001

PELHAM PTY LTD
PH: (02) 9980 6988
Fax: (02) 9980 6991
E-mail: ram@pelhampl.com.au
100 Yarrara Rd
Pennant Hills, NSW 2120

Need...

Motherboard, AMD CPU, Intel CPU, Network Card, USB HUB, RAM, Laptop, Handheld PC...

Anything Else?

ware.com.au

ORGANIC FOOD | HEALTH | BEAUTY | HAIR CARE | HOME & OFFICE | SOFTWARE | COMPUTERS

Delivering more on the web!

INFOCODE
BUSINESS PRODUCTIVITY SOFTWARE

Check it out at

www.infocode.com.au

- Software to organise your resources
- Web database integration and development

Email: infocode@infocode.com.au

BULK INKJET REFILLS
STROUDCO
Specialists in Inkjet Solutions
*Inkjet Refill Secrets

*Free newsletter • How to save 95% on printing; Water Proof Printing; Refilling as a Business with every order

BLACK REFILL KITS FROM $28.00

PRINTER	NO OF FILLS	KIT NO
CANON BJ30/50/70/80/85	30/8	C10
CANON BJ200/210sp/255sp/265sp	7	C2/2A
CANON BJC2000/4000/5000 series	50/8	C8
CANON BJC3000/6000/6200/8500	6	C19
CANON BJC7000/7100	6	C15
CANON S400/S450/S600/S800	6	C19
EPSON STYLUS COLOUR 680/777/870/1270	8	E18
EPSON STYLUS COLOUR/20UX/40UX/40SX	12	E7A
EPSON STYLUS COLOUR 820/II/IIS/200	12	E4
EPSON STYLUS COLOUR 400/500/600/700/Photo	12	E7
EPSON STYLUS COLOUR 800/850/1520	12	E7
EPSON STYLUS COLOUR 440/640/740	12	E7A
HP DESKJET 400, 500 & 600 series	7	H2/H4
HP DESKJET 700/800/900/1200 series	6	H13
IBM 4076/LEXMARK 1000/1020/2030	6	M1
LEXMARK 3200/5700/7000/Z series	6	M5

COLOUR REFILL KITS FROM $38.00

PRINTER	NO OF FILLS OF EACH COLOUR	KIT NO
CANON BJC50/70/80/85	60	C11
CANON BJC210/210sp/255sp/265sp/1000	12	C3
CANON BJC3000/6000/6200/8500/8200	5	C20
CANON BJC2000/4000/5000 series	30	C9
CANON S400/S450/S600/S800	5	C20A
EPSON STYLUS COLOUR 680/777/870/1270	10	E19/E20
EPSON STYLUS COLOUR 20UX/40UX/40SX	12	E9A
EPSON STYLUS COLOUR 820/11/11S	12	E5
EPSON STYLUS COLOUR 200/400/500/600/800	12	E8/E9
HP DESKJET COLOUR 400, 500 & 600 series	12	H3/H5
HP DESKJET 700/800/900/1200 series	7	H14
LEXMARK 3200/5700/7000/Z series	12	M6

PHOTO CARTRIDGE REFILLS AVAILABLE
BULK INK AVAILABLE
WEB: www.stroudco.com

Free Delivery
PHONE/FAX ORDERS & ENQUIRIES
(03) 9879 2800
Fast Service (Express Post Available)
Money Orders | Cheques | Credit Cards | EFT | Accepted
PO Box 729, Heathmont, Victoria 3135

CD COPYFAST

- Professional CD-ROM Duplication Services
- We specialise in short run and super fast turnaround
- Custom Silkscreen Printing on Blank CD-R
- Visit our web site for our range of CD services

www.diskmax.com.au

DISKMAX (02) 9699 3333
Email : sales@diskmax.com.au

To book your
pc world shopper
Advertisement for March 2002

Telephone:
Rita Baynash on (02) 9902 2725
Fax: (02) 9906 4684
E-mail: rita_baynash@idg.com.au

TELEPHONE LINE SHARING

Australian Made Solutions for Businesses of All Sizes

HOT NEW PRODUCTS

CALL RECORDING UNIT

Record your telephone calls to PC, or other recorder, from an ordinary single line or any multi-line phone system. Automatic operation with start/stop capability from any handset PC software & cables supplied.

CLI READER - Calling Number Display

Identify & display information on your callers before answer, with PC pop up display. Operates with an ordinary single line or any multi-line phone system. PC software & cables supplied.

LOG OUTGOING CALLS.

Record the phone number, time & date of ALL your outgoing calls to your PC. Check your Phone Bills ! Operates with an ordinary single line or any multi-line phone system. PC software & cables supplied.

NETWORK ISOLATION UNIT

100% Network Firewall Protection! This unit automatically disconnects your Modem Server from your network whenever the modem makes or receives calls and reconnects the modem when it is finished.

SHARE YOUR LINES AND SAVE INSTALLATION & RENTAL CHARGES

FAXSTREAM DUET SWITCHES

Will allow any Fax or Modem device to operate with the Telstra FaxStream Duet service. Provides fully automatic fax reception, just like having a separate line. Two models available

VOICE FAX MODEM FAXSWITCHES

Integrate ANY Fax (or Modem) into ANY telephone line for fully automatic fax reception. Operates with or without an answering machine. Just plug it into any telephone socket. Two models available.

FAX MODEM SWITCHES

Allow one or more Modems and/or EFT-POS devices to automatically share one line OR your existing dedicated Fax line. Provides incoming & outgoing call selection. Just plug it into any telephone socket. Three models available.

EASYCALL MULTIPLE NUMBER

Operate Two numbers on one line. Auto-Connect will connect your Multiple number calls to one set of phones or answering machine and your Normal number calls to another set of phones or answering machine.

ARE YOUR PRODUCTS OR SERVICES WORTH TALKING ABOUT ?

TALKING DISPLAY UNIT

TDU will play 1 or more pre-recorded messages as soon it is triggered by a movement sensor, a switch, or at a preset time interval. Ideal for Product Promotions, Product Information. Message Warnings etc.

MULTIPLE INPUT UNIT

MIU allows for up to 12 separate movement sensors or switches to be connected to the TDU. Each sensor triggers its own unique message, output via any 8 ohm unpowered, powered or amplified speaker.

SPEAKER SWITCHING UNIT

SSU allows for up to 12 separate speakers to be connected to the TDU so that each sensor triggers its own separate message, output on its own separate speaker. Background music can be played at all other times.

AUDIO SWITCHING UNIT

ASU allows the TDU to be connected to any existing PA or Background Music system. The existing PA or Background Music system is then muted or faded whenever a TDU message is broadcast and then reconnected when finished.

CONTROL YOUR EQUIPMENT BY TELEPHONE LINE

REMOTE TELEPHONE ACTIVATOR

Call in to Switch ON, Switch OFF or RESET your PC, SERVER or any electrical equipment by telephone line using touch tone commands. RTA connects to any telephone line. Requires PCU or PCR accessory.

RTA-PRO VERSION

PRO version provides independent control of 2 separate outputs, with PIN number security. Status tones for each output are provided on answer. Shares an existing line when used with the Multiple Number service.

POWER CONTROL UNIT

PCU connects direct to the RTA and also to your power socket to allow telephone line dial in switching of the 240V supply connected to your equipment. Easy Plug In User Installation. Controls up to 10 Amps.

PC RESET UNIT

PCR connects to any PC to allow remote telephone PC RESET, or can also be used to turn ON or OFF PC's with ATX style motherboards. Easy User Installation.

MUSIC OR MESSAGE ON HOLD FOR ANY LINE

DIGITAL MESSAGE CENTRE

DMC is Australia's #1 Message on Hold player. Low Cost, High Quality unit provides many years of trouble free operation. Message updates via plug in non volatile digital memory cartridges. Fit DMC and stop paying Radio on Hold licence fees.

MESSAGE UPDATE BY MODEM

DMC-PRO is our latest MP3 based product. It allows dial in Message Updates using its internal modem option or plug in flash card. We have a national network of Dealers ready to produce your customised messages.

SINGLE LINE ON HOLD

Just plug our MOH Line Sharer into any socket on your telephone line, connect any audio source (Radio, PC or DMC) and you now have a professional telephone line On Hold facility for your existing telephones.

AUTOMATIC ATTENDENT

Our single line CALL ATTENDENT will answer your incoming calls after 4, 6 or 8 rings, play a greeting & message to your callers until you are able to answer. Also provides Message on Hold facility.

TELEPHONE LINE DOOR STATION AND TRANSFER

DOOR STATION UNIT

Will RING all of your telephones when a visitor arrives at your front door or gate. Answer to communicate. Open the door or gate with touch tones. Operates on any ordinary single line or multi-line phone system. Requires Door Phone.

SURFACE MOUNT DOOR PHONE

This unit provides for quick and easy mounting direct onto any wall surface. Your visitor just presses the integral call button to ring your telephones. Provides clear 2 way communication as soon as you answer.

FLUSH MOUNT DOOR PHONE

This attractive Stainless Steel unit is designed for a flat recessed fit into your wall surface. Your visitor just presses the integral call button to ring your telephones. Provides clear 2 way communication as soon as you answer.

TELEPHONE CALL TRANSFER

Easy-Transfer allows you to answer a call on one telephone and then TRANSFER the call to another telephone fitted to the same line. Also provides INTERCOM facility. Uses your existing telephones.

TELEPHONE LINE SIMULATORS FOR TESTING, TRAINING, DEMONSTRATION

RINGMASTER STD

Will allow any 2 telephone devices to ring and communicate with each other, without the need to make costly calls and occupy 2 lines. Ideal for Testing, Training & Demonstration of all telephone devices.

RINGMASTER PRO

Provides all facilities of the STD model, and in addition provides Australian Dial Tone, Busy Tone and multiple ring outputs including FaxStream Duet & Multiple Number ring. Also available with USA, UK, or other output.

RINGMASTER CLI

Provides all facilities of the PRO model and in addition will generate CallerID (Calling Number Display) output in conjunction with any Telstra ring pattern. Provides 10 preset outputs, plus Alphanumeric & user definable transmissions.

INTERNATIONAL & METER PULSE

International Version provides switch selectable dial tone, busy tone and ring output emulation for over 20 countries

Meter Pulse model will output 12 kHz meter pulses for payphone/hotel testing

MANUFACTURED IN AUSTRALIA

ACA COMPLIANT

NATIONAL COMMUNICATIONS

Australia's Telephone Line Sharing Company

For a Full Description of your solution, please call

SUPPLIED WORLDWIDE

NZ TELEPERMIT APPROVED

R & TTE EUROPE TESTED

FACTORY DIRECT on (07) 5596 5128 or DISTRIBUTORS: NSW (02) 9905 6670, VIC (03) 9887 6206

• UNCONDITIONAL 30 DAY MONEY BACK GUARANTEE • TWO YEAR WARRANTY • NEXT DAY DELIVERY • DEALER ENQUIRIES WELCOME •

Visit our comprehensive Web Site for information, other products, brochures, prices, product sheets, installation diagrams or to place an order.

Web Site: www.natcomm.com.au **Email: info@natcomm.com.au**

GO!

Domain Names from $30/year

Web Hosting from $15/month

visit www.Server101.com for further information

Server101.com
webhosting & ecommerce

ph: 07 3876 6101
fax: 07 3876 3101
www.server101.com
info@server101.com

Call us today or visit our website to enquire about our current specials

Computer Video Capture Shop

Firebird XE: DV & Analogue Video Editing

Unlimited Video File Length (>4GB) even under Windows 98/Me/FAT32
High-Quality DV & Analogue Video I/O, MPEG1+2 Encoding for DVD/VCD
Front-Mounted 5.25" Bay for DV+SVideo+RCA+Stereo-Audio Connection

Video Editing PCs

Real TurnKey Systems:

DVD-R Writers Built-in to ALL Video Edit PCs

Video Master: $3999

Both DV AND Analogue I/O,
2 Hour Video Storage at 30GB,
Unlimited Capture(File > 4GB)
128MB RAM, 15" Monitor,
Premiere6, MPEG 1&2 Encoding
Pioneer DVD-R Writer Built-in!

Video Real-Time: $5999

Analogue & DV Capture/Edit
Realtime Titles & Transitions,
3 Hour Video Storage at 40GB,
Unlimited Capture(File > 4GB)
Premiere 6, 17"Monitor.
Pioneer DVD-R Writer Built-in!

System Can Be Customised
Live Demo. Everyday

FusionMPEG2&1 Video Capture

Capture MPEG2 & MPEG1 Video in Realtime
720X576 Full Frame Size, 8MBPS, CBR&VBR
UnLimited Video Capture Length(No 4GB Limit)
Capture Video into Multiple Files(for CD Writing)
Instant Cut-Edit: No Software ReCompression
Create DVD/XSVCD/SVCD/XVCD/VCD Video
Internal PCI or External USB Devices
Win98/Me/2K Driver, Nero 5.5 Full, VideoWave
$888 inc. GST

Video Capture Problems? Try

The Video Capture Specialist:

* Over a Dozen Capture Cards on Live Demo.
* Full Range Video Capture Cards & Edit PCs
* Detailed Cards & PC Comparison Sheets
* FREE installation & Technical Support
* Trouble-Shooting Services for VideoEdit PCs
* Used Cards & Software, Trade-ins Welcome
* Video Encoding Services: $99/DVD,$55/CD
* Weekly Rent of Video Capture Cards!

Video Capture Cards

Analogue Cards (SVideo/RCA):

DC10+	$499
DC30+	$1599
Aurora Fuse(Mac)	$1300

DV Cards (Firewire/iLink):

SkyMaster DV	$99
PyroDV	$349
StudioDV	$399
Canopus EZ DV	$599
Firebird+Prem. 6LE	$499
DVRaptorRT	$1499
AV-DV Converter	$685

DV & Analogue Edit Cards:

Firebird XE +Prem.6	TBA
DVNowAV+Prem.6	$1499
DV500+Premiere6	$1999
RT2500+Prem. 6	$2400
Pinnacle Pro-One	$2999
DVStorm	$2999

MPEG1 Encoding Devices:

StudioVCD	$225
FusionMPEG	$888
Dazzle USB	$785

MPEG2 Encoding Cards:

FusionMPEG	$888
Dazzle DVCII	$995

Computer Video Capture & Editing: G12, 683 George St., Sydney NSW 2000
Tel. 02-92117882 Fax 02-92117630 Internet: www.inventa.com.au e-mail: info@inventa.com.au

www.newreality.com.au www.newreality.com.au www.newreality.com.au www.newreality.com.au www.newreality.com.au www.newreality.com.au www.newreality.com.au www.newreality.com.au www.newreality.com.au

SUPERIOR PERFORMANCE

INKJET REFILL KITS

REFILL & SAVE AT LEAST 80% OFF PRINTING COSTS

REUSE RECYCLE REFILL

We stock a large range **specialty paper** and media including **High Resolution, Full Gloss, Clear Film** and **Magnetic Paper.**

Why not try New Reality's *'Easy-to-Use'* Inkjet Cartridges, available for all major brands of printers. Enquire today!

Your printer not listed? We stock Australia's largest range of printer consumables. Call Now!

BLACK REFILL KITS FROM ONLY $24.90

DESCRIPTION (Kits Compatible with Printers listed below)	No. of Refills	Product Code
CANON BJ-30	60	20-BKL
CANON BJC-50/55/70/80/85/85W	60	21-BKL
CANON BC-01/02/BJ-10E/20/200/BJC-210/240/255/265/1000	9	3-BKL
CANON BJC-600/610/620	16	5-BKL
CANON BJC-2000/4000/4100/4200/4300/4550/5000/5500 BCI-21	45	19-BKL
CANON BJC-2000/4000/4100/4200/4300/4550/5000/5500 BC-20	9	18-BKL
CANON BJC-3000/6000/6200/6500/8000 & S400/S500 Series	12	46-BKL
CANON BJC-7000/7100 Series - Including Optimaxl	6	43-BKL
CANON BJC-8200 & S800 Series	6	52-BKL
HP Desk Jet 400/500 Series	8	8A-BKL
HP Desk Jet 600/660/690 Series	8	8B-BKL
HP Desk Jet 700/800/900/1000/1100/1200 Series	8	29-BKL
HP Desk Jet 300 Series & Olivetti JP's!	12	7-BKL
EPSON Stylus 400/800/800+/1000	12	1-BKL
EPSON Stylus Colour /PRO/XL	12	2-BKL
EPSON Stylus 820/colour II/IIs	12	23-BKL
EPSON Stylus Colour 200/300/400/500/600/800/850/1520	12	33A-BKL
EPSON Stylus Colour 440/460/480/640/660/670/700/720/740/760/900/1160	12	33B-BKL
EPSON Stylus Colour 680/777/780/785/870/880/875/890/1270/1280	12	Please Call!
LEXMARK 4076/1000/1020/2000/2030/2050 Series	6	35A-BKL
LEXMARK 3000/5000/5700/7000 Series	6	35B-BKL
LEXMARK Z11/Z12/Z22/Z31/Z32/Z42/Z51/Z52 & Other Z Series	6	35C-BKL

BUY 3 GET 1 FREE

Easy to use Refill Kits also available for Apple, Brother, Samsung, Sharp and Xerox Printers, Multifunction & Fax Machines...CALL NOW!

Black kits include superior, dense & sharp black inks!

COLOUR REFILL KITS FROM ONLY $34.90

DESCRIPTION (Kits Compatible with Printers listed below)	No. of Refills	Product Code
CANON BJC-50/55/70/80/85/85W	3x30	22-CLR
CANON BJC-210/210SP/240/255/265/1000	3x8	25-CLR
CANON BJC-600/610/620	3x8	10-CLR
CANON BJC-2000/4000/4100/4200/4300/4550/5000/5500 BCI-21	3x30	17-CLR
CANON BJC-3000/6000/6200/6500/8000 & S400/S500 Series	3x8	47-CLR
CANON BJC-8200 & S800 Series	3x6	53-CLR
HP Desk Jet 300/400/500 Series & Olivetti!	3x12	14A-CLR
HP Desk Jet 600C/660C/690C Series	3x12	14B-CLR
HP Desk Jet 850C/855C/870C/1000C Series	3x3	30A-CLR
HP Desk Jet 710/720/890/900 Series	3x3	30B-CLR
EPSON Stylus Colour /PRO/XL	3x4	16-CLR
EPSON Stylus 820/colour II/IIs	3x12	24-CLR
EPSON Stylus Colour 200/300/400/500/600/800/850/1520	3x12	34A-CLR
EPSON Stylus Colour 440/460/480/640/660/670/700/720/740/760/900/1160	3x12	34B-CLR
EPSON Stylus Colour 680/777/780/785/870/880/875/890/1270/1280	3x12	Please Call!
LEXMARK 4076/1000/1020/2000/2030/2050 Series	3x6	36A-CLR
LEXMARK 5000/5700/7000 Series	3x6	36B-CLR
LEXMARK Z11/Z12/Z22/Z31/Z32/Z42/Z51/Z52 & Other Z Series	3x6	36C-CLR

BUY 3 GET 1 FREE

Easy to use Photo Realistic Refill Kits available for all Canon, Epson, HP & Lexmark Photo Quality Printers.....CALL NOW!

Colour kits include magenta, cyan & yellow inks!

All brand and product names are registered trademarks of their respective owners and used solely for descriptive purposes.

USING NEW REALITY'S INKJET REFILL KITS WILL NOT VOID YOUR PRINTER'S WARRANTY.
BEWARE OF INFERIOR COPIES, BUY THE "ORIGINAL" AUSTRALIAN REFILL KIT!
New Reality has no affiliation with any printer manufacturers or OEM's and nor has any arrangement been made with them to form the basis of any statements we make

New Reality COMPUTER SUPPLIES
New Ideas, New Products.... New Reality
Dealers wanted in all states and NZ!
For more information please call:

New Reality Resources Pty. Ltd. ACN - 073 906 013
Australia Wide FREECALL - 1800 680 605
Fax - (07) 3245 2755

Bayside Business Park
Shop 1 / 70 Redland Bay Rd
Capalaba Q 4157

General Enquiries - (07) 3245 2411

FREE CATALOGUE WITH EVERY PURCHASE

SATISFACTION 100% GUARANTEED

Freecall ORDER HOTLINE 1800 680 605
www.newreality.com.au

FREE AUSTRALIA WIDE DELIVERY! SAME DAY DISPATCH!!
COD * MONEY ORDER * CHEQUE * MASTER * VISA * BANKCARD * AMEX ACCEPTED

To book this strip for 3 months and pay a special rate call Rita Baynash to find out more

Tel: Rita Baynash on (02) 9902 2725 - E-mail: rita_baynash@idg.com.au

Training needed for call centre career

Call centres and help desks are essential functions of most businesses and are often located in regional areas around Australia, including Ballarat, Bendigo, Newcastle and Deniliquin. Some call centres are outsourced and come in many guises to deal with a multitude of functions such as inbound and outbound teleservices, technical support, customer relationship marketing, after hours and business answering services.

The ACTU (Australian Council of Trade Unions) believes call centre training is so important that it has issued a Call Centre Charter.

What is the future for call centres based in Australia? In December last year, the Department of Foreign Affairs and Trade (DFAT) created a stir when it suggested it would be a good move for Australian organisations to outsource their call centre operations to countries like India because of cheaper labour to staff the centres. The good news is that of all the IT vendors PC World spoke to for this section, not one was thinking of outsourcing its call centre operations to India.

TRAINING OPTIONS Vendors such as IBM, Optus, Dimension Data Learning Services (DDLS), Nortel, AOL and Dell do not outsource their call centre operations and all have comprehensive internal training programs, which does not lead to many openings for training vendors.

Nevertheless, there are specialised call centre and help desk training organisations catering to this niche market, and IT training organisations, such as DDLS, have introduced special courses this year. Steve Ross, DDLS Manager said, "Communication, problem-solving and being able to follow clearly defined processes within certain parameters are key skills for all help desk personnel."

Optus has 1000 call centre employees split between its office located at the Adelaide Technology Park and the Optus Centre in Adelaide. All customer service staff undergo a 15-day course presented by internal trainers in a simulated call centre environment. The Optus College, a nationally accredited and registered training organisation, provides a Certificate 3 in call centre operations for Optus employees who want to gain formal qualifications. IBM has three customer care management centres located in West Pennant Hills, Ballarat, and its Technical Help Desk for Asia-Pacific is in Brisbane. The Brisbane centre has quite a large community of Japanese-speaking operators to help with technical problems for Japanese customers.

IBM training consists of one week of introductory training at IBM followed by two to four weeks of a buddy system, in which trainees sit and listen to a trained operator and progressively take over some of the tasks as their confidence grows.

Dell's call centre in French's Forest services Australia and New Zealand, and it has a call centre based in Penang in Malaysia that supports the rest of Asia-Pacific. Rob Small, Marketing Manager for Dell, said, "All training is done in house and it includes face-to-face classroom training plus on-the-job training. When it comes to Penang, the call centre operators have additional training in local language, post codes, colloquialism, and Australians are based there to help with any issues that arise."

CAREER PATHS Entry-level positions command between $28,000 and $32,000 depending on experience, and outbound IT sales operators earn $35,000 to $45,000 plus sales commission.

Providing a clear career path and the appropriate training contributes towards lowering the attrition rate of call centre operators, according to Louise White, Training Manager of Datacom. "Previous customer service experience is a prerequisite for employment with Datacom's customer contact centres, followed by some IT experience." After extensive training, which also includes a buddy system, Datacom operators have a wide range of career options to choose from that lead to management and in many cases employment by Datacom's customers, which include Microsoft, Novell, Sun, Corel and NetGear.

STATE OF THE MARKET According to Robert Walters, call centre recruitment manager at Thrish Marshall, highly qualified positions are in demand. "Specialist roles for people with experience for technical and first-level support are in demand, but this could change on a monthly basis. There is an influx of low-quality candidates now because the good people are staying put," he said. ■

– Merri Mack

Call Centre Course Providers

Educom
www.educom.com.au
(02) 9957 1633
- A+ Certification
- Microsoft Certified Professional (MCP)
- Microsoft Certified Systems Administrator (MCSA)

Dimension Data Learning Solutions
www.ddls.didata.com.au
13 1201
- Generic Help Desk Course
- Help Desk Core subject of Network Technologies degree

Lidcombe TAFE
www.ssi.tafensw.edu.au
- Level 111 Certification of IT (Network Administration)

SmartForce
www.smartforce.com
(02) 9941 6333
- Communication for Contact Centres
- Developing Effective Supervisory Skills
- Leading Effective Teams
- Service Agent Skills

MIS Technologies Centre
www.misasia.com
(03) 9820 8885
- A+ Certification
- Network + Certification

University of Sydney
www.usyd.edu.au/cce
(02) 9351 2907
- Computer Support
- Effective Communication

Custom Call
www.customcall.com.au
(02) 9216 4900
- Pre/on job training

Callscan Australia
www.callscan.com.au
(03) 9253 1009
- Call Centre Seminars

Brendan Walsh Communications
www.brendan.com.au
(02) 9959 5803

Council of Adult Education
www.cae.edu.au
(03) 9652 0611
- National Certified Call Centre Qualification

Chisholm Institute
www.chisholm.vic.edu.au
(03) 9209 5794

books

on the shelf

Buying and Selling Online

BY JOHN WATSON

Dorling Kindersley's Essential Computers books are slim, concise and well-diagrammed guides to basic computing tasks. The latest member of the family, Buying and Selling Online, is no exception.

If you are new to the Web, Buying and Selling Online might provide a good base to get you started. There are straightforward chapters on how to use search engines, how to check the security at a site, and create passwords.

The design of the DK Essential Computers books features lots of large screenshots and illustrations with labels, which helps readers quickly glean the information they need. A good example of this in Buying and Selling Online is the double page spread on sites to avoid. By using a screenshot of a site that exhibits all the hallmarks of a dodgy site, and clear labels of where you can find these signals, you can grasp the salient points very quickly.

Much of the book deals with how you can use auction sites to buy goods. There are sections on how to register at auction sites, finding specific products, and checking the goods and seller. There's also information for selling goods at auction sites.

Although there is an attempt to avoid being US-centric by using examples like eBay UK in the registration section, a good deal of the examples are for American sites. For many, however, buying from overseas sites like Amazon presents no problems and, generally, most of the tips hold true for e-commerce sites wherever they are.

If you're looking for a basic, get-to-the-point guide to e-commerce, Buying and Selling Online is worth a look.

– Deanne McIntosh

Publisher: Dorling Kindersley (Penguin Books Australia)
Price: $14.95
Phone: (03) 9871 2400
URL: www.dk.com.au
ISBN: 0751333611

How to Do Everything with Your Scanner

BY JILL GILBERT

This book should, perhaps more appropriately, be called "How to Do Everything with Your Scanner and Image Editing Software". Fully one-third of the content is devoted to manipulating the image after it's left the scanner.

The book seems to be aimed at home users who are total beginners. It has an emphasis on making greeting cards and party invitations, or wacky montages in which Cousin Bob's head has been replaced by that of an animal. If that's what you're after, this is the book for you. If you're serious about producing top-level images for professional use, another guide might be more to your taste.

A four-part logical progression takes you from The Basics of Scanning, through Techniques of Scanning and Editing, via Practical Uses for Your Scanner, to end up in Additional Scanning Projects.

You'll learn how scanners work and what to look for in one, then set it up. Once your scanner's working, Part II will get you through that first scan and into image editing. Practical Uses covers scanning negatives and slides, and deals with optical character recognition (OCR) and creating editable text documents. Finally, there's the fun stuff, like poor Cousin Bob and how to e-mail his image to the rest of the family. All the chapters feature How Tos, Tips and Notes to point out important bits of information, but illustrations are often not on the same page as the text, necessitating flicking back and forth.

It has to be said that the proliferation of grainy, poorly reproduced black and white photographs used to illustrate the text do the book no favours. The end results of the author's image manipulations often appear amateurish, clumsy and obvious — presumably not the effect intended.

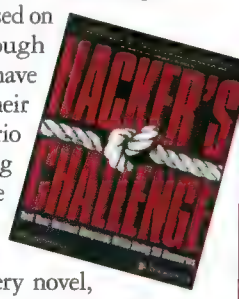
– Karen Leverington

Publisher: Osborne (McGraw Hill)
Price: $44.95
Phone: (02) 9415 9899
URL: www.mcgraw-hill.com.au
ISBN: 0072191066

Hacker's Challenge

BY MIKE SCHIFFMAN

If you've read tonnes of security textbooks and are looking for a way to test them out (without actually living through a hack attack), consider Hacker's Challenge.



Designed to "test your incident response skills", Hacker's Challenge presents 20 scenarios (based on actual attacks, although company names, etc., have been changed) and their solutions. Each scenario has a narrative describing the attack — complete with date and time stamps — that reads something like a mystery novel, and then the associated logs and diagrams you need as clues. In each scenario you follow the footsteps of a fellow systems administrator or IT manager as they deal with a hack attack.

The scenarios cross industry and range in complexity, in terms of the type of attack as well as prevention and mitigation. Sometimes there are clues, but most of the time you need to go through the forensic evidence (logs, network diagrams and so on) to come to a conclusion about the attack.

Along with making Hacker's Challenge interesting reading, the scenario-based structure serves to highlight the fact that security issues cannot be addressed without considering how a company uses its network. In one scenario, for example, what looks like a hack attack (without giving too much away) turns out to stem from the way the company concerned sourced and supported its technology.

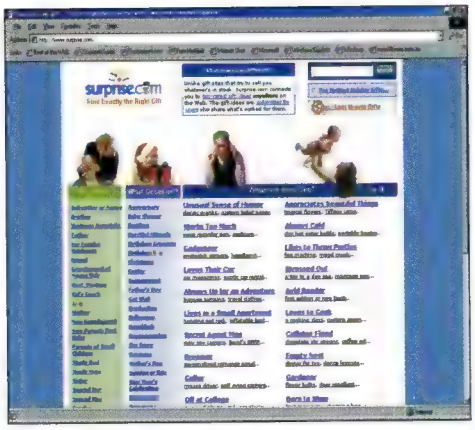
It's also refreshing to find a book that deals with securing systems without devoting pages and pages to scare mongering. There are some references to doom and gloom headlines in the introduction but, thankfully, very little tabloid-like coverage.

If your job is to secure your company's network, take a look at Hacker's Challenge — even if it's just to validate to yourself your ability to cope with an attack! ■

– Deanne McIntosh

Publisher: Osborne (McGraw Hill)
Price: $57.95
Phone: (02) 9415 9899
URL: www.mcgraw-hill.com.au
ISBN: 0072193840

Surprise.com
www.surprise.com



Christmas may have come and gone, but the need to find the right gift persists throughout the year. Find help for birthdays, weddings and anniversaries at Surprise.com — a site that suggests gifts based on the recommendations of users. The idea goes that someone who has bought something for someone similar to your giftee will give you great feedback on what that type of person would like. The site is easy to navigate, with gifts based on occasion, who it's for and what the recipient is like (for example, 'Always up for an adventure'). Although a lot of the gifts recommended are from US sites, it could still be a great source of inspiration. Gift ideas come with a short description from the submitter. Some of the suggestions are pretty left field — how about a personal air purifier (worn on a strap around the neck, naturally) for the frequent traveller?

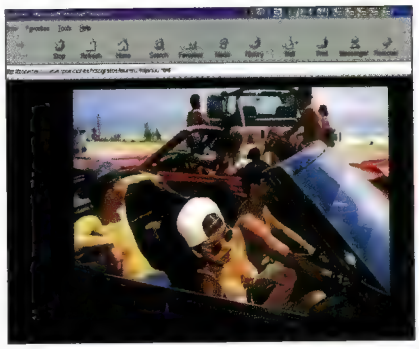
Australian Privacy Commissioner
www.privacy.gov.au

This year, make a resolution to ensure you protect your privacy when surfing the Net and dealing with companies. New privacy laws came into force last December that are designed to help you mind your own business. Only time will tell if the Government's regime will cut the mustard; in the meantime, you can read up on your rights at the Privacy Commissioner's site. Most of the content is designed to help companies prepare for the new legislation (for example, how they should deal with your requests for details of what they hold on you), but there is some information for consumers.

Captain Haddock's curses
www.interlog.com/~tbaikie/homepage/haddock.htm

Stuck for the right witty retort? Looking for a fabulous putdown? Well, you won't find it using Captain Haddock for inspiration. Tintin is well known for his investigative skills (not to mention his hairdo and fashion sense), and his fellow character from the Tintin books is famous for his bizarre curses that pepper the creations of Hergé. Odd-toed ungulate! Gallows-fodder! Lily-livered bandicoots! These are just some of the examples. Visit David's collection for a list as well as a form for submitting your own Captain Haddock curse gleaned from a Tintin book. For the official Tintin site, go to www.tintin.be. This well-produced site (in French and English) is a must-see for Tintin fans.

Fast Forward
http://zonezero.com/exposiciones/fotografos/lauren2/portada.html



Even those who think today's kids are growing up way too quickly will be shocked by Lauren Greenfield's Fast Forward exhibition. The photos show a world in which 13-year-olds have exotic dancers at their parties and three-year-olds attend VIP events. It's Los Angeles, of course, and the slide show does a good job at contrasting the lives of young kids in this Californian city. Compare the bar mitzvahs that cost $US90,000 to the boy who saved for two years to attend his final year dance in style, or the kids involved with gangs. Don't miss the preface, where Greenfield talks about her reasons for producing the series and her experience photographing and talking to young people in LA. The site hosts many other photography exhibits that are worth a visit. ■

editor's choice

100 years of the Nobel prizes

With the announcement of the 2001 Nobel Peace Prize last December, the august institution celebrated 100 years of existence, and the awards of this highly publicised prize provide an interesting insight into the last century.

The Foundation's site (**www.nobel.se/nobel/nobel-foundation/index.html**) lists the winners and hosts some speeches and background on Nobel, the man who conceived the prize, but the most interesting content is in the e-Museum (**www.nobel.se**). As well as streaming video of the 2001 awards ceremony, there is information such as biographies and lectures on Nobel Laureates grouped by category (Literature, Peace and so on).

The Nobel Prize Internet Archive (**www.almaz.com/nobel**) has similar information on the Laureates, as well as a gossip bulletin board and links to news coverage of the winners and background information online.

Nobel's story will be well-known to many but it still serves to illustrate how great scientific achievement can help to advance mankind — as well as introduce catastrophic change. Nobel's wealth, stemming from his discovery of dynamite, became the basis for what is most probably the world's best-known peace prize. CNN has a special report on the Award's centenary, including a photo gallery (**www.cnn.com/SPECIALS/2001/nobel.100/overview.html**).

Over the years, many of the Nobel Foundation's choices have been heavily criticised. The CNN report cited above, for example, details the controversy over the selection of Henry Kissinger for his part in negotiating the Vietnam peace accord in 1973 — at a time when America was being condemned for its part in the war. Regarding the most recent awards, the presentation of the peace prize to Kofi Annan and the UN has angered many in Israel. For an example of this viewpoint, visit **www.aish.com/societyWork/society/Devaluing_the_Prize.asp**.

Now, for something completely irreverent, visit the Ig Nobel page (**www.improb.com/ig/ig-top.html**). According to the site, the Ig Nobel Awards "honor people whose achievements 'cannot or should not be reproduced'". Luckily, many of the winners have a sense of humour — many choose to attend the ceremony. ■

gadgets

Segway Human Transporter

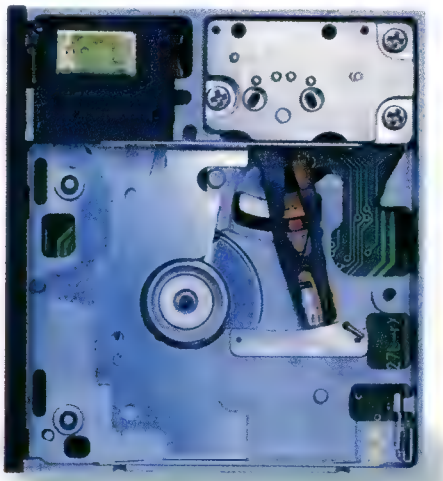
Most closely resembling a scooter, the Segway is a two-wheeled personal transportation system that is "driven" by the body's movements. Cruising speed is around 20km/h. Although the prototype is out, the HT won't be available for (US) consumers until later this year. In the meantime, you can register to receive newsletters, updated release information, and other news about Segway HT at the Web site.

Segway
Price: From $US3000; business-class version $US8000
URL: www.segway.com

DataPlay digital media

Not really a gadget itself, but designed for gadgets — thus qualifying for this page. It is pretty colourful and funky for being, well, memory. This postage-stamp-sized disc is a new type of storage for digital media players and recorders. DataPlay's tiny discs will be available for sale very soon.

DataPlay
Price: $TBA
URL: www.dataplay.com



Parachute backpack

Designed for the sporty geeks, the STM Parachute range has two main compartments. The back section is subdivided to include a padded, suspended notebook pouch. The pouch fits notebooks with 15in screens, securing them with both drawstring and Velcro closure systems. The large front section has space for books and folders.

STM
Price: $170
Phone: (02) 9300 6912
URL: www.standardtm.com.au

Airboard

Sony has endowed its Airboard personal IT television with a new look, improving the screen, giving it more functions and vastly improving the base station. First announced a year ago, the Airboard marries the functions of a television and Internet tablet PC into a portable device that is designed to be carried around the home and allow access to TV, audio-visual devices or the Internet from anywhere within a 30m range of its base station.

Sony
Price: ¥130,000
URL: www.sony.com

SimCycle

This is more than just a weird-looking exercise bike — the Eloton SimCycle connects to your PC and includes a built-in MP3 player. When you load the Eloton Theatre Software (free) you can travel through motivational photo-realistic environments while calculating personal statistics (time, speed, distance, calories). Say goodbye to the great outdoors.

Eloton
Price: $US200 (approx)
URL: www.eloton.com

Nixvue Digital Album

Now that you have taken all those shots of the stuffed turkey and that beach holiday up the coast, you're probably wondering where to store those images? You can quickly and conveniently download images from your camera's storage media into the Nixvue Digital Album with a simple button operation. The Digital Album has enough capacity to store thousands of high-resolution images.

Distributor: C R Kennedy
Price: $1295 for the 10GB and $1450 for the 20GB
Phone: (03) 9823 1555
URL: www.crkennedy.com.au

Sony digital TV

Prior to the release of the KD-32DX40AS, Sony said consumers had to purchase a separate set-top box in order to view digital telecasts. Well, now you don't — though this privilege isn't cheap. This digital TV comes in the wide screen 16:9 format and has a viewable screen of 76cm.

Sony
Price: $4499
Phone: (02) 9887 6666
URL: www.sony.com.au

Wacom Cintiq 550

Wacom's Cintiq interactive pen display is a TFT screen combined with a graphics tablet and pressure-sensitive pen that works on the display surface. The display has been specially designed to be glare-free, so you get a much clearer image. Now for the science bit: the transparent layer on the LCD is thinner, so that the deviation point between where the pen touches the screen and the actual LCD is closer. This means that the perception of the pen's point is improved.

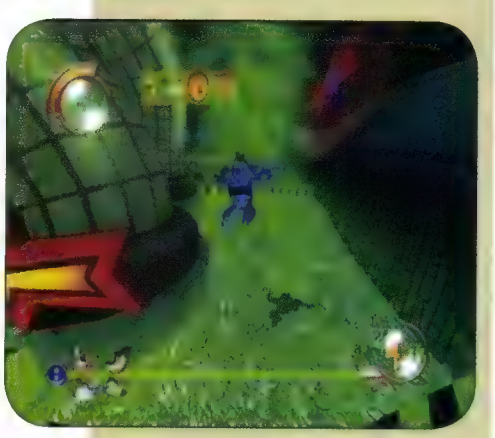
Distributor: Video Bytes Australia
Price: $5060
Phone: (03) 9348 9177
URL: www.videobytes.com.au

xbox

Mad Dash Racing

BY DAN ELECKTRO

Remember the PlayStation game Running Wild? No? There's a good reason — the "funny animals in footraces" genre tends to feel forced. In that tradition, Mad Dash Racing lacks emotional appeal; it's a character game without likeable characters.



Several furry critters — a wisecracking cat, a crude hog, and a raging weasel among them — run, jump, climb, swim, and slide their way through colourful fantasy tracks, grabbing power-ups and tackling each other along the way. The bright visuals look colourful and a little weird — sort of what Tim Burton would create if he suddenly became happy. However, animated hijinks deserve looney tunes, not bad-ass, out-of-place techno beats from Fatboy Slim and Crystal Method. The rewardingly varied controls are the game's best asset; swimming through lakes and scaling dinosaur ribcages adds some enjoyable manual dexterity to the go-forward repetition.

However, for all its shiny visuals and four-player races, Mad Dash Racing elicits nothing more than a noncommittal shrug. The stars are animals without an anima, and as a result, it's just a rental.

Publisher: Eidos
Developer: Crystal Dynamics
URL: www.maddashracing.com

Aliens Versus Predator 2

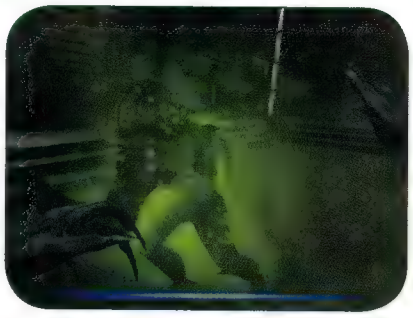
BY D-PAD DESTROYER

The lightning-fast weirdness of the Alien and the cold-blooded bad-ass factor of the Predator mix with all the weapons and guts of the hardcore Colonial Marine. It sounds like a recipe for the perfect game, and Aliens Versus Predator 2 comes extremely close. It starts off like just about any other Aliens/Predator story: a bunch of Marines lands on a strange planet to investigate a lost colony, and they end up being attacked by two of the sweetest monsters ever to grace the silver screen. You play as either the weapon-slinging Marine, the stealthy Predator, or the spine-tingling Alien as the events unfold.

Unlike its predecessor's, AVP2's story lines crisscross and intersect. For example, in the Alien campaign, you'll hear radio chatter that refers to things you'll do in the Marine's game. Other than a common story line, though, the three species play very differently; mastering the Marine won't make you a better Alien. This difference in play adds tonnes of replay value to the game.

AVP2 bests the original in just about every way. For one, the game's difficulty has been tuned so that it ramps up intuitively as the game goes on. Considering that each species has special controls, AVP2 handles really well, though the Alien's wall-crawling can get very disorienting, and a handful of awkwardly placed keys forces a wee bit of keyboard-searching. Visual cues help with the disorientation, and you can remap the keys completely, so these are only minor gripes.

This is definitely one of the best presented games for the PC. Each species has its own head-up display and ambient sounds, adding to the immersiveness established by incredibly detailed environments and well-designed enemies. You've never seen the Lithtech engine crank like this. The utterly perfect soundtrack delivers exactly the mood you want, from the smooth coolness of the Predator's snarl to the eerie silence of the Marine's pinging motion tracker. The Marine campaign is not for the squeamish; the humans are by far the underdogs in this battle, and you'll spend a lot of time in the dark listening



for spooky noises and emptying clips into harmless wildlife that blipped into your motion detector.

AVP2 is definitely one of the coolest PC shooters for some time. As you play, you'll keep hearing, "This is so cool" ringing in your mind — in those moments of rest between mowing down waves of bugs and calming your violently beating heart.

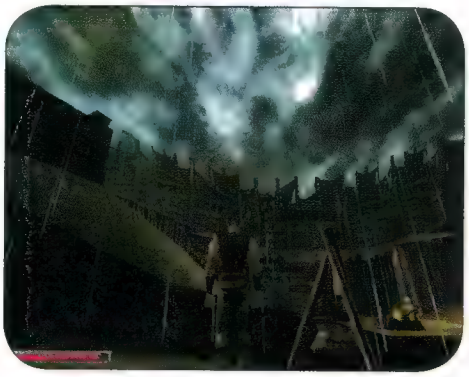
Publisher: Sierra
Developer: Monolith
URL: http://avp2.sierra.com

Gothic

BY DUNJIN MASTER

Welcome to the mining colony of Khorinis. War with the local orcs has forced the king to decree that all prisoners must toil in the mines for the good of the kingdom. To keep the prisoners in, the king's mages cast a magical barrier around the colony — but the spell extended the barrier farther than the mages intended. It will be your mission to find a way to destroy the magical barrier and free the innocent from within. How you do it is up to you.

You can join three major camps: the main mining camp, a camp ruled by mages, and a camp of cultists who believe their god will save them. You will create your character through your actions, rather than by choosing a class or stats. If you want to be a mage, you'll have to make the right friends and



do the right favours, possibly making powerful enemies along the way.

The unintuitive control scheme in the preview version couldn't tarnish the polished graphics, sweet sound, and immersive feel. If the rest of the game is as interesting as this tiny little taste, then PC RPG fans are in for a treat.

Publisher: JoWood
Developer: Piranha Bytes
URL: www.xicat.com/games/Gothic.htm

Warcraft III

BY DUNJIN MASTER

It's 15 years since the humans defeated the orcs, and now a new challenge rises in the form of the Burning Legion. Over the years, the orcs have rallied under the flag of a new leader, while the humans have become complacent. This sets the stage for one of the most highly anticipated RTS battles in gaming history, Warcraft III: Reign of Chaos.

After deciding that simply having orcs fight humans wasn't enough, Blizzard will introduce two all-new races in Warcraft III: the Scourge, undead creatures who reproduce by corrupting fallen enemies; and the Night Elves, who have emerged from seclusion to protect the world from destruction. Each of the game's four races will have unique units and strategies, presumably strengthened by Blizzard's legendary attention to game balance.

Blizzard has been awfully quiet about this game, which will be Warcraft's first foray into 3D graphics. The screenshots look great, but you'll have to wait to see the game in action. If Warcraft III is even half as good as Blizzard's other offerings, it should be worth the wait.

Publisher: Blizzard Entertainment
Developer: Blizzard Entertainment
URL: www.blizzard.com/war3

Medal of Honor: Allied Assault

BY D-PAD DESTROYER

PlayStation gamers have known the wonder that is Medal of Honor for years, but the series is just now coming to PCs, and it definitely looks like an invasion worthy of the game's title. Medal of Honor: Allied Assault will cast you as Lt Mike Powell, a soldier on the front lines of the struggle against Nazi Germany. Missions will include everything from squad-based rescue to the Normandy invasion, complete with Higgins boats, bangalores, and soldiers dying left and right from machine-gun fire and artillery.

The preview version of Allied Assault scored points by mixing real-world missions with a certain level of realism that makes you feel like you're in the war and not rocket-jumping about in 1940s France. You'll go up against the enemy in actual World War II locations like France, Germany, and Northern Africa, using real Allied and Axis weaponry. There will even be missions in which you man a mounted machine-gun while a fellow soldier drives your Jeep through enemy territory, or where you drive a tank and try to take out enemy buildings. The early version's realism seemed to rest comfortably between Unreal Tournament and Rainbow Six — real enough to be immersive, but not so real that it interferes with the fun.

Even with the unique missions and locations, Allied Assault will be familiar to PC FPS vets. The preview version was simple to grasp and easy to understand. The difficulty and frame rate still need some tuning, but the game already looks and plays great. Even in this early stage, Allied Assault looks like a contender for PC gaming's highest honours. ■

Publisher: EA Games
Developer: 2015 Inc.
URL: http://mohaa.ea.com

xbox

Batman: Vengeance

BY THE MAN IN BLACK

Batman: Vengeance is an action-packed hunt for the Joker and company through the mean streets of Gotham City, as inspired by the Warner Bros cartoon show. The 3D visual and audio style is topnotch, and the cinemas are a blast — even if some camera views are awkward and some areas are a little too dark and muddy.

The workmanlike controls take some pain out of manoeuvring the cam and manage the energetic, er... com-Bat nicely. You nimbly flip between third-person and first-person action, and Batman displays some cool moves, including long gliding leaps using his cape and an awesome skydiver-like freefall. Basic hand-to-hand fighting consists of just simple, two-button jamming for kick and punch, but there are a few combos and power moves. The first-person action is more versatile, using a Bat arsenal that includes the Bat-grapple and, of course, Batarangs.

There's much to praise about the effort behind this rough-hewn but imaginative game. If you're a fan, you might tackle this tale of the Dark Knight with a vengeance.

Publisher: Ubi Soft
Developer: Ubi Soft
URL: http://batmanvengeance.ubi.com/main.html

bytesback

Bonacci and ...?

Attendance at the last Vegas Comdex might have been down due to the fear of terrorism, but some things never change, like the family chat around the keynote campfire with Uncle Bill Gates. It's the same message every year — "gee-willikers, the PC is just great and has a bright future". On the entertainment bill for the keynote was an Aussie act flown in to give the keynote some "international flavour". No, it wasn't Our Kylie, Our Nikki, nor even Our silverchair, but a couple of dinkum balladeers called Bonacci and Wood. Haven't heard them on radio yet? Bytesback was able to track down the boys on a busking gig, obviously trying to stay out of the limelight. Weddings, parties, keynotes...

You've got face mail

Auckland University is developing software to let Kodak outlets build an animated face from a photograph, which can read e-mail to recipients. The project is part of the work the university does with American company LifeFX Networks. The university helps develop LifeFX's Facemail application, which creates virtual characters (including a very personable tiger) to read e-mail aloud. This is way cool! Now you can get an image of your mum or Aunt Beryl to read out loud your important e-mail — "Hey big boy! Let's get it on!" or what about "Hot Asian ladies waiting". Well, maybe not THAT e-mail...

The Kiwis have bought a whizzo Silicon Graphics supercomputer for this project and other less-important stuff, like bettering humankind through research into modelling human physiology for drug research.

Legal eagle plucked

The only thing likely to replace the now-settled Microsoft vs US DoJ stoush on the tireless Bytesback watchlist was a certain major terrorist event — so it was with some inevitability that the two converged.

"In light of the recent tragic events affecting our nation," US District Judge Colleen Kollar-Kotelly (say that name three times fast!) said back in November, both sides should start negotiating "24 hours a day, seven days a week". The good judge said the issues had been argued for more than six years, and both the Feds and the software company could spend their money better elsewhere.

During her hearings, Judge Kollar-Kotelly denied multiple requests from Microsoft to get more time for various aspects of the case, noting that the Government and Microsoft requested seating for 28 lawyers. "I'm assuming all of these people have something to do with the case," the judge remarked, a thesis that should be studied by every law student. Mmmm, let's see: that's 28 lawyers on hourly rates, times 24 hours per day, times seven days, times...

And now the head of Microsoft's legal department, William Neukom, has decided to retire, presumably before Microsoft has a chance to get into any more trouble. Microsoft CEO Steve Ballmer noted: "After 22 years, it's time to let Bill hang up his bow-tie and pursue all his other passions, from his family foundation to his many civic duties to his love of baseball and fly-fishing." Aw shucks.

Spam of the month

By the time you read this, Benny Laden will probably be a cinder, but this effort sent in by Danny Liu is worth reproducing:

Show your patriotism! with Osama Toilet Paper! Targets! Urinal Pads! and Voodoo Dolls!

E-mail:
dr_backbytes@hotmail.com

Bend and stretch

A number of independent schools around the country require parents to buy or lease notebook computers for their children. Other schools are sceptical about the benefits of such technology, pointing to side-effects such as theft and a lack of social interaction.

Physiotherapists are also concerned that using and transporting computers could harm growing bones.

Leon Straker, an associate professor at Curtin University's school of physiotherapy, said posture could be determined by the way a person used technology.

"People using a laptop computer have their head bent more than a desktop computer, so the muscles and bones in their necks may develop in a slightly different shape," he said — surely nothing that a few million years of evolution won't correct anyway. ■

Proof! Using a notebook can affect growing bones.

Mind your step

One of Microsoft's comms agencies, Spin Communications, got into hot water recently for spray-painting the Xbox logo onto South Sydney Council's spanking new footpaths. The Council threatened to charge Spin $300 a pop to remove the green cross.

But Bytesback has seen this logo before (and not just in the footpath in front of our favourite Kings Cross club). It's something about the green, something about the X...

PAY A LOT LESS,

GET A LOT MORE.

DigitalStar PCs are designed to offer you the ability to tailor your PC requirements for your need. We design in quality, reliability and performance. Built on the first class compatible components which selected not based on their ability to match a price point, but on their ability to add true value to the final solution. Our commitment to customer service explains why we owe a large proportion of our business to repeat orders from recommendation and satisfied customers.

IntelliPro 1600GX

Intel® Pentium® 4 Processor 1.6GHz

- Deluxe Case with USB Front Access
- 256MB DDR RAM 266MHz
- 17" Monitor (0.27dp, 16"v.i.s.)
- 64MB Geforce2™ MX200 AGP 4X
- 3D Audio & Sub-woofer Speakers
- 20GB Hard Disk 7200 RPM, 12XCD-Rewriter
- 104-Key Keyboard & Wheel Mouse
- 10/100 LAN, 56K V.90 Modem
- Microsoft® Windows® XP Home
- 3-Year Limited Warranty*

POWERED BY **DDR MEMORY**

intel inside pentium 4

Get tomorrow's technology today

The Digital Star IntelliPro 1600GX is powered by 266MHz DDR memory which boost your system performance by up to 20%.

$1899 or $20.83/W*

Business Desktop

Professional Desktop

15" LCD Included

Value Workstation

19" Monitor
512Mb RAM
16 X DVD ROM

3D Graphics

21" Monitor
512Mb DDR
Geforce3

BizPro BX110

Intel® Celeron™ Processor 900Mhz

- ATX Tower Case
- 128MB SDRAM, 20GB Hard Disk
- 15" Digital Monitor
- 8Mb SMA AGP Graphics
- 52X CD-ROM, 3D Audio
- 104-Key Keyboard & Mouse
- Integrated 10/100M LAN
- Microsoft® Windows® XP Home
- 3-Year Limited Warranty*
- with 15" LCD only $1799

$1199 or $13.15/W*

IntelliPro 2000BS

AMD® Athlon® XP Processor 1600+

- ATX Tower Case
- 256MB SDRAM, 20GB Hard Disk
- 17" Monitor (0.27dp,16" v.i.s.)
- 32MB nVidia TNT2™ AGP 4X
- 3D Audio, 52X CD-ROM
- 56K Modem, Speakers
- 104-Key Keyboard & Mouse
- Microsoft® Windows® XP Home
- 3-Year Limited Warranty*
- with 15" LCD only $2099

$1549 or 16.99/W*

IntelliPro 1700GX

Intel® Pentium® 4 Processor 1.7GHz

- Deluxe Case with USB Front Access
- 512MB SDRAM PC 133
- 19" Monitor (0.25dp, 18"v.i.s.)
- 64MB nVidia Geforce2™ MX200
- 3D Audio & Sub-woofer Speakers
- 40GB Hard Disk
- 16X DVD-ROM
- Internet Keyboard & Wheel Mouse
- 10/100 LAN Card, 56K V.90 Modem
- Microsoft® Windows® XP Home
- 3-Year Limited Warranty*

$2199 or $21.58/W*

PowerMax 5000

Intel® Pentium® 4 Processor 1.9GHz

- Deluxe Tower Case
- 512MB DDR RAM 266MHz
- 21" Hitachi CM823 Flat Screen CRT
- 64MB DDR Geforce3™ Titanium 200
- 3D Audio & Sub-woofer Speakers
- 40GB Hard Disk 7200 RPM,
- 52X CD-ROM
- Microsoft IntelliMouse & Internet Keyboard
- 10/100 LAN Card, 56K V.90 Modem
- Microsoft® Windows® XP Pro
- 3-Year Limited Warranty*

$4199 or $39.25/W*

* DigitalStar's terms and conditions of sale are applied and are available on request. Prices, specifications and availability subject to change without notice. The Intel Inside logo and Pentium are registered trademarks of Intel Corporation. All brands and product names are trademarks of their respective companies. Product pictures for illustrative purpose only. All Digital Star Desktop PC comes with a 3-Year Limited Return to Base Warranty. First two-year provide parts and labour warranty. Year 3 provide labour warranty only. Rental rate based on 36 months and subject to the rental terms and conditions.

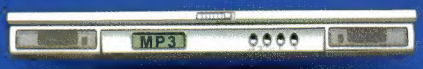
DIGITALSTAR
Technical Excellence

02-99292868 1800800628 (Outside Sydney)

or visit www.digitalstar.com.au

- North Sydney 02-99292868 Shop2/110 Walker St Fax: 02-99292865
- Auburn 02-87486828 15 Newton St Sth Fax: 02-97379326

Stylish, Light and Powerful



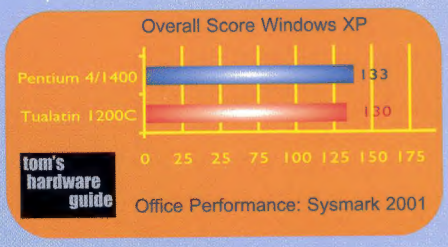
MULTIMEDIA ENHANCED

- The Firewire IEEE1394 connection: Capture, edit and create movies
- Front side LCD and Audio DJ: Play MP3 music without powering up the machine
- SPDIF out connector

INTERNET SOLUTIONS

- COMBO Modem and LAN
- Direct Internet access button
- Touch pad enhancement with Scroll button: Scroll easily when browsing the web

1.2GHz Notebook



The new PowerNote 240 is the perfect business, leisure and travel companion. It is powered by the Intel® latest Tualatin processor up to 1.2GHz, featuring the Wireless LAN add on option and weights just 2.9Kg.

PowerNote 240MDT 1.2GHz
256Mb, DVD, MP3 Player, LAN & Modem

$2699

or $26.48/W*

- **Intel® Tualatin Processor 1.2GHz-C**
- 256K Internal L2 Cache, 256MB RAM
- 14.1" Active TFT LCD 1024 x 768, 32Mb SMA 3D Video
- 8X DVD-ROM, 20GB Hard Disk, LAN & 56K Modem
- Microsoft® Windows® XP Home, 1 Year Limited Warranty*

DISCOVER THE POWER

PowerNote 240 - Stylish, Light and Powerful

- Hardware MP3 Player
- IEEE 1394 Firewire

- 8X DVD-CDRW Included

FREE Carry Bag

PowerNote 240MRT
Intel® Tualatin Processor 1.2GHz-C

- 14.1" Active TFT LCD 1024 x 768
- 256Mb RAM
- 32Mb SMA 3D Graphics AGP 2X
- 8X CD-ReWriter, 20GB Hard Disk
- Upgrade to 8X DVD-CDRW add $350
- COMBO LAN & 56K Modem
- Wireless LAN PC Card add $189
- Microsoft® Windows® XP Home
- 1 Year Limited Warranty*

$2999 or $29.42/W*

PowerNote 240MDR
Intel® Tualatin Processor 1.2GHz-C

- 14.1" Active TFT LCD 1024 x 768
- 512Mb RAM
- 64Mb SMA 3D Graphics AGP 2X
- 8X DVD-CDRW COMBO
- 30GB Hard Disk
- Upgrade to 40G Hard Disk add $149
- COMBO LAN & 56K Modem
- Microsoft® Windows® XP Home
- 1 Year Limited Warranty*

$3499 or $34.33/W*

PowerNote 340 - All in one Design

FREE 128Mb RAM

- 15.1" LCD Display

FREE Carry Bag

PowerNote 340CTL
Intel® Pentium® III Processor 1.1GHz

- 14.1" Active TFT LCD 1024 x 768
- 128MB RAM, 1.44Mb Floppy Drive
- Now 256Mb with 128Mb Free Bonus
- 32Mb SMA 3D Graphics AGP 2X
- 24X CD-ROM, 10GB Hard Disk
- Upgrade to 8X DVD ROM add $199
- COMBO LAN & 56K Modem
- Microsoft® Windows® XP Home
- 1 Year Limited Warranty*

$2599 or $25.50/W*

PowerNote 345DT
Intel® Tualatin Processor 1.2GHz-C

- 15.1" Active TFT LCD 1024 x 768
- 256MB RAM, 1.44Mb Floppy Drive
- Upgrade to 512Mb RAM add $199
- 32Mb SMA 3D Graphics AGP 2X
- 8X DVD, 20GB Hard Disk
- Upgrade to 8X CD-RW add $199
- COMBO LAN & 56K Modem
- Microsoft® Windows® XP Home
- 1 Year Limited Warranty*

$3099 or $30.40/W*

DigitalStar's terms and conditions of sale are applied and are available on request. Prices, specifications and availability subject to change without notice. The Intel Inside logo and Pentium are registered trademarks of Intel Corporation. All brands and product names are trademarks of their respective companies. Product pictures for illustrative purposes only. Rental rate based on 36 months and subject to the rental terms and conditions.

DIGITALSTAR
Technical Excellence

02-87486828 1800800628 (Outside Sydney)
or visit www.digitalstar.com.au

North Sydney 02-99292868
Shop2/110 Walker St Fax: 02-99292865

Auburn 02-87486828
15 Newton St Sth Fax: 02-97379326